

Appendix D

Traffic and Transportation Technical Support Document

OVER THE RIVER
TRANSPORTATION AND TRAFFIC
TECHNICAL SUPPORT DOCUMENT

REVISED DRAFT

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Prepared For
Bureau of Land Management, Royal Gorge Field Office

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1.0 INTRODUCTION

1.1 Proposed Action and Alternatives

Over The River (OTR) is an artist-generated proposal for a temporary work of art. The artists proposed action is to suspend a series of fabric panels from a system of cables and anchors over the Arkansas River between Cañon City and Salida, Colorado.

OTR would be located primarily on Federal land managed by the Bureau of Land Management (BLM). As such, the BLM must comply with the National Environmental Policy Act (NEPA), which directs Federal agencies to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources...” (NEPA Section 102 (2)(E)). This discussion briefly describes the alternatives development process and then provides a detailed description for each alternative retained for further analysis in this EIS.

Alternatives were assembled using the building blocks of four project components:

1. ***Panel Placement***, which refers to the physical extent and specific locations where the fabric panels would be located.
2. ***Transportation***, which refers to traffic management strategies and/or the inclusion of transit options to facilitate the movement of visitors through the exhibit.
3. ***Visitor Management***, which addresses how visitors would be managed and the infrastructure needed to accommodate those visitors.
4. ***Temporal Considerations***, which includes the timing, duration, and season of the project phases.

The action alternatives were built around *Panel Placement* as the key project component.

Seven separate action alternatives and the No Action Alternative have been developed. These alternatives are summarized in Table 1. The alternatives are described in detail in Chapter 2 of the EIS.

Table 1. Summary of the Over The River Alternatives

			No Action	Alternative 1			Alt. 2	Alt. 3	Alt. 4
				1a	1c	1d			
PANELS		5.9 miles at 8 sites		x	x	x			
		4.8 miles at 5 sites					x		
		4.1 miles at 8 sites						x	
		1.4 miles at 4 sites							x
TRANSIT		No transit		x	x	x	x	x	x
		With transit							
VISITOR MANAGEMENT	Rationing	Existing boat rations		x		x	x	x	x
		New, temporary rations*			x				
	AHRA Sites	AHRA sites open, existing uses permitted; standard SP entrance fees apply		x			x	x	x
		AHRA sites open, OTR-related rec. uses only; event-only fees applied			x				
		Close AHRA rec. sites; lump sum payment to offset revenue loss				x			
	Staging/Info	Parkdale		x	x	x	x	x	x
		Texas Creek		x	x	x	x	x	
		Fremont Road		x	x	x	x	x	x
		Salida		x	x	x	x	x	x
TEMPORAL	Const. Duration	Two years		x	x	x	x	x	
		One year				x			x
	Viewing Window	Two weeks		x		x	x	x	x
		Three weeks			x				
	Viewing Season	June/July					x		
		August		x	x			x	x
		September				x			

*New rations would apply during exhibition period only.

1.2 Organization of the Report

The Traffic Study is organized as follows:

Chapter 2 Existing Conditions / Affected Environment presents Section 3.13 of the EIS.

Chapter 3 Future Background Traffic Conditions (2013) uses information from Chapter 2 and calculates future traffic for the Exhibition year.

Chapter 4 Assumptions and Methods for Estimating Traffic for the Project Alternatives clarifies the how visitation estimates and other assumptions were used to develop traffic volumes for each alternative and set up the analysis of the Alternatives in Chapter 5.

Chapter 5 Transportation and Traffic Effects Analysis uses the vehicle volume calculations from Chapter 4 to characterize the effects of each Alternative and provides specific findings necessary for the EIS.

Chapter 6 Recommendations / Alternative-Specific Mitigation proposes additional measures, beyond those defined as common to all alternatives, to avoid, minimize and/or mitigate the effects of each alternative, as described in Chapter 5.

Chapters 4, 5 and 6 are summarized in Section 4.13 of the EIS.

Sections 5.10, 5.11 and 5.112 provide input to Sections 4.19, 4.20 and 4.21 of the EIS, respectively.

2.0 EXISTING CONDITIONS / AFFECTED ENVIRONMENT

The transportation issues raised by the artists' proposed action and alternatives relate to the movement of people and goods within the regional setting of the project. Key transportation issues relate to motor vehicle traffic, safety, mobility, and access; railroad facilities, uses and operations, and; aircraft operations over and within the OTR Project Area. More specifically, transportation considerations include:

- Traffic congestion
- Increased vehicle travel times
- Detours and alternate routes
- Increased accident rates or risks for automobiles, trucks, bicycles and/or pedestrians
- Limits and/or constraints on residential, commercial, recreation, and/or school bus travel
- Limits and/or constraints on emergency vehicle response times and new demands for emergency service providers
- Possible uses of passenger rail services and airspace to accommodate visitors

Measures to reduce peak period motor vehicle demand are important transportation considerations and relate directly to visitation management issues and strategies discussed in other technical reports.

2.1 Current Conditions and Trends

The following discussion presents information about the transportation network and related infrastructure, traffic congestion, safety, mobility and access.

2.1.1 Transportation Network and Infrastructure

The Analysis Area for transportation and traffic issues is focused in central Colorado, but the context for understanding the role of US 50 in the regional roadway network encompasses the Interstate 80 (I-80) corridor in Wyoming, the Interstate 70 (I-70) and Interstate 25 (I-25) corridors in Colorado and the Interstate 40 (I-40) corridor in New Mexico.

National, State, Regional and Local Setting

Roads

I-80, I-70 and I-40 provide primary east/west access across the United States in Wyoming, Colorado and New Mexico, respectively. US 50 is another key east/west corridor across the country. In Colorado, US 50 connects to Grand Junction and I-70, Pueblo and I-25, and to several towns in eastern Colorado such as La Junta and Lamar.

The primary roads in the regional roadway network include: I-25, US 50, US 285, US 24, and State Highways 9, 17, 115, 96, 69, 67, 160, and 291. Other important roads include a variety of County Roads in the Analysis Area of US 50 between Cañon City and Salida. The key County Roads include: High Park Road (to Cripple Creek), 1A (from Cotopaxi to SH 69), 3 (back side of Royal Gorge) and 3A (main entrance to Royal Gorge). The major roadways can be seen in Figure .

US 50 is the most important roadway in the OTR Analysis Area and is therefore the primary focus of the following discussions. However, other roadways in the Analysis Area are important in relation to routes that are used to access US 50, alternate routes to US 50, and possible detour or evacuation routes when US 50 is closed or capacity is limited by construction activity or natural phenomena such as snow, avalanche, landslide, rock fall, or flooding.

Other roads in the Analysis Area handle traffic associated with residential, commercial, and industrial development and tourism. These roads typically operate with traffic volumes below capacity and delay is generally limited to isolated locations and incidental occurrences.

There are no pronounced weekday peak hours or weekend peak periods, except in the vicinity of Colorado Springs. Seasonal traffic peaks occur in the summer months in relation to tourism.

The following is a brief description of the roadway characteristics in the Analysis Area as classified by CDOT. Characteristics vary depending on exact location.

Route - Description	Average Daily Traffic (ADT) Range
<ul style="list-style-type: none"> SH 9 Rural, two- to four-lane mountainous or rolling highway 	600 to 1500
<ul style="list-style-type: none"> SH 17 Rural, two-lane mountainous, rolling, or flat highway 	1100 to 4000
<ul style="list-style-type: none"> US 24 Ranges from an urban, four-lane rolling highway near Colorado Springs to a rural, two- to four-lane mountainous or rolling highway traveling west towards the junction with US 285 	1000 to 32000
<ul style="list-style-type: none"> SH 67 Rural, two-lane rolling highway 	1600 to 4000
<ul style="list-style-type: none"> SH 69 Rural, two-lane rolling highway 	500 to 3800
<ul style="list-style-type: none"> SH 96 Ranges from an urban, two- to four-lane rolling highway near Pueblo to a rural, two-lane mountainous or rolling highway traveling west towards the junction with SH 69 	1000 to 32000
<ul style="list-style-type: none"> SH 115 Ranges from an urban, two- to four-lane rolling highway near Colorado Springs to a rural, two- to four-lane rolling highway traveling south towards the junction with US 50. 	4300 to 32500
<ul style="list-style-type: none"> SH 160 Rural, two- to four-lane mountainous, rolling, or flat highway 	1000 to 21600
<ul style="list-style-type: none"> US 285 Rural, two- to four-lane mountainous, rolling, or flat highway 	1600 to 7100
<ul style="list-style-type: none"> SH 291 Rural, two-lane mountainous highway 	3200 to 4600

US Highway 50 is an important national, state, regional and local roadway because it meets federal design standards for a US Highway, provides a route for interstate commerce, provides primary access between Grand Junction, Montrose, Salida, Cañon City, and Pueblo and is a key route for travel along the Arkansas River in the mountainous areas west of Pueblo. If US 50 is inaccessible due to weather, a landslide, a motor vehicle accident or for other reasons that can result in closure, the best alternate routes increase mileage and travel times for motorists.

The lane, median and shoulder characteristics of US 50 change substantially between Pueblo where the roadway passes through urban areas and Grand Junction. Between Cañon City and Salida, US 50 is primarily a two lane undivided highway with occasional passing lanes, at grade signalized and unsignalized intersections, pullouts with parking, and small pull-offs. Lane widths are 12 feet and shoulders vary, but can be as narrow as two feet in areas where the topography dictates. Figure 2 and 3 present the features of US 50 between Parkdale and Texas Creek and Texas Creek and Salida, respectively (lane configurations, key intersections, passing lanes, and primary pullouts and pull-offs).

“Pullouts” are locations where there is room for parking and maneuvering beyond the roadway and expanded shoulder. A “pull-off” is an area where there is room to park beyond the roadway shoulder, but limited room to maneuver. Various designated recreation site parking areas and 135 pullouts and pull-offs of various sizes are located along US 50 between mileposts 224 and 267. Most of the pullouts and pull-offs are unimproved areas where one or more vehicles can get off the road and park.

Bus Transit

Greyhound Bus Line provides limited scheduled service for a large number of locations, which do not support a full-service terminal or agency. Greyhound has one of these limited bus stops located in Salida.

Also, the school districts of Salida, Cotopaxi, and Cañon City utilize US 50 in the Analysis Area. The Salida and Cotopaxi school districts operate bus service in the Project Area while the Cañon City school district is outside of the Project Area limits.

The Cotopaxi School District's limits encompass milepost (MP) 230 in Howard to MP 260 near Spikebuck. All five Cotopaxi routes access US 50 in the mornings and afternoons. There are two westbound routes and three eastbound routes from the school which is located near MP 246. The routes run between MP 232 in Howard with a turnaround at the Broken Arrow to MP 253 at Texas Creek, then continuing south on SH 69. Cotopaxi has 16 assigned stops on US 50 on the morning and afternoon routes. A total of 13 stops are located on the westbound routes in Coaldale and Howard. A total of 3 stops are located on the eastbound route toward Texas Creek. Buses access US 50 Monday through Thursday, from approximately 6:00-8:00 AM and 4:00-6:00 PM. According to Dean Ward, Transportation Director for the Cotopaxi School District, a total of 212 of 223 students are currently assigned to the five bus routes and actual ridership typically equates to about 80% of the assigned students (170 riders).

The Salida School District operates as far east as MP 230 by Swissvale. They operate one route in the Project Area in the morning and afternoon from approximately 6:00-8:00 AM and 4:00-6:00 PM, as well as one kindergarten midday route. The only stop on US 50 in the Project Area is in front of the Frontier Café located in Howard. According to Kay Blum, Director of Transportation for the Salida School District, a total 17 students use this bus service.

Figure 1. Regional Roadway Network

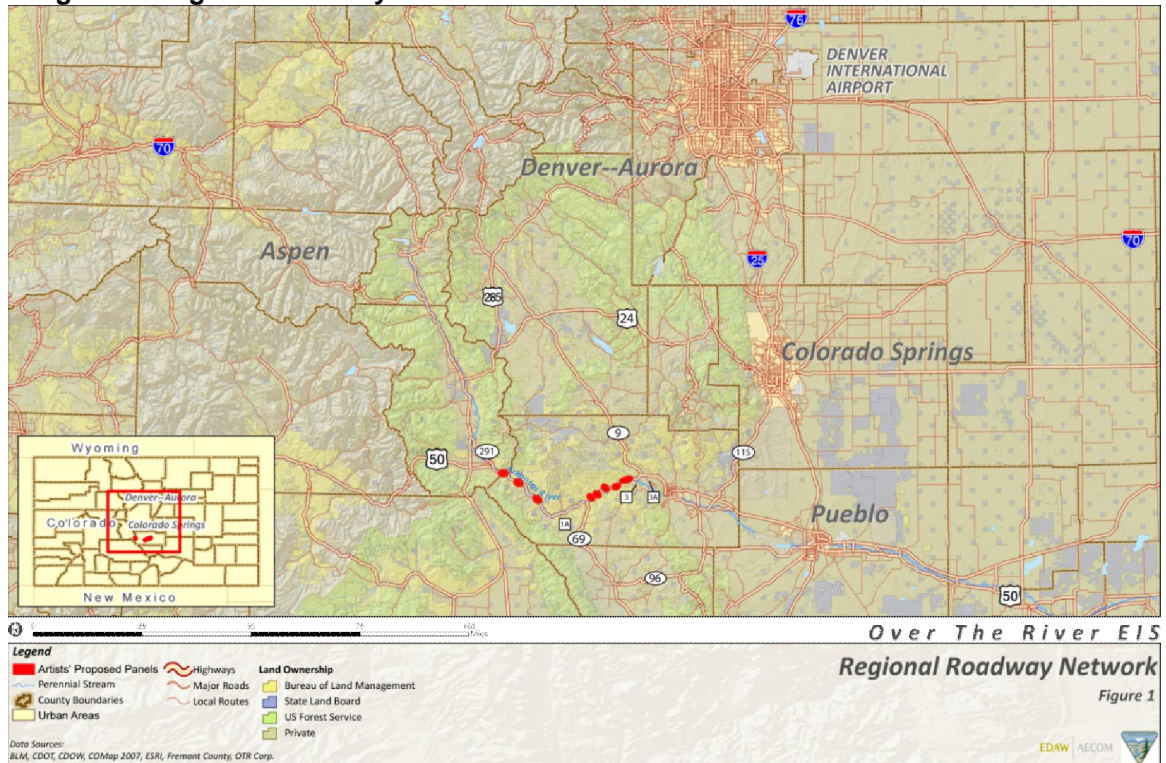


Figure 2. Project Area (east)

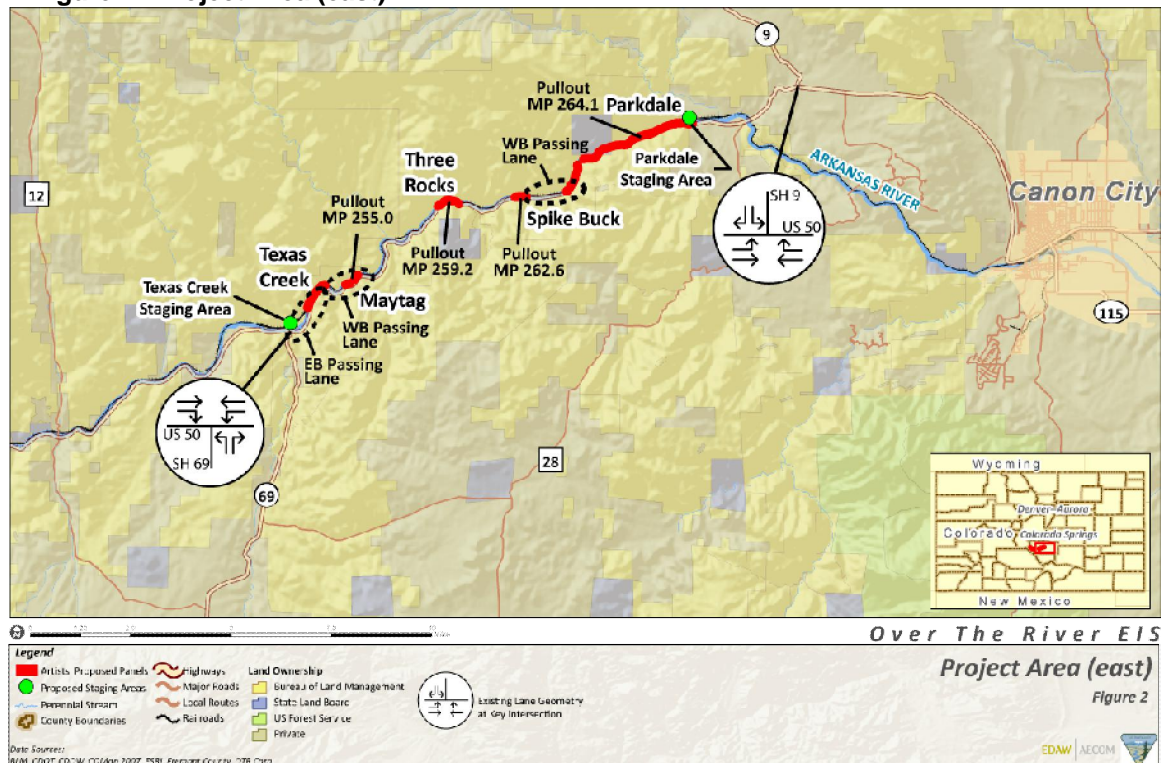
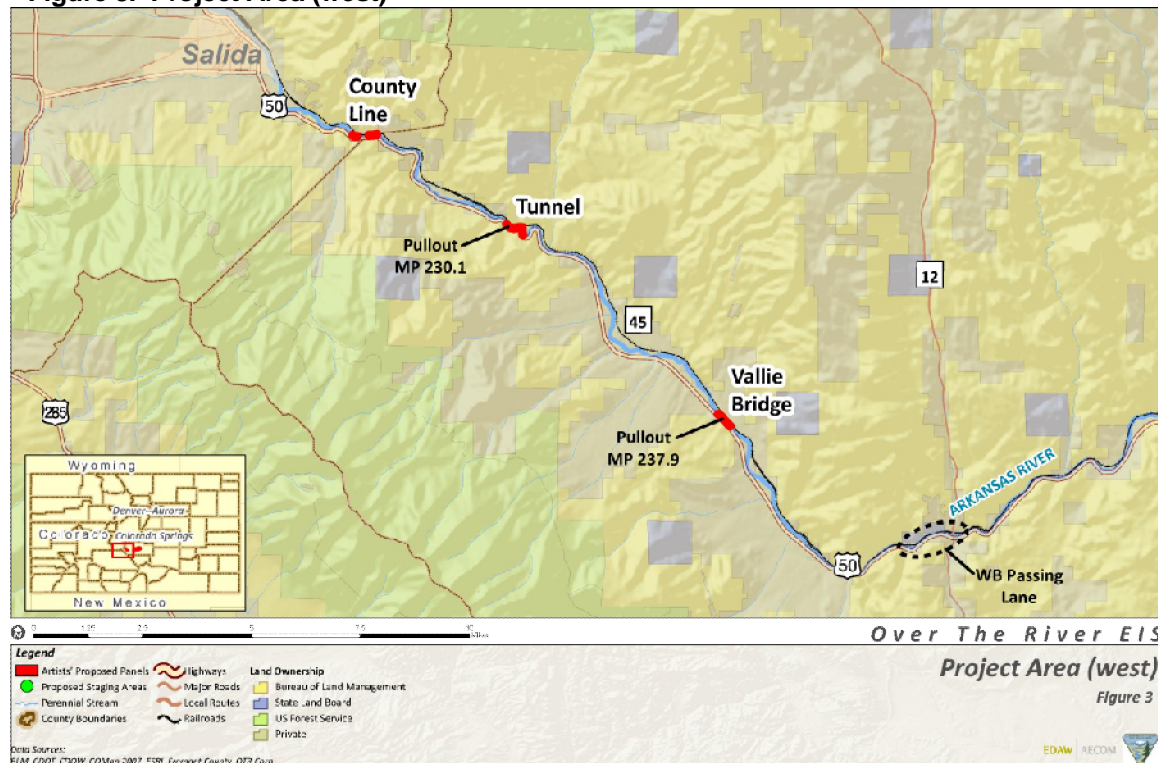


Figure 3. Project Area (west)

Freight Rail

Freight rail tracks exist in the Analysis Area and along the Arkansas River and US 50 as shown in Figure 4. The tracks in the Project Area are owned by Union Pacific Railroad and at this time, they are not being used for freight transportation. Consultation with Union Pacific indicates that substantial track bed, rail, signal, and other improvements and corresponding permitting would need to be completed before the anticipated route would be ready for freight operations and/or passenger service. An extensive examination of the conditions of the track bed, rail and related systems would be needed before a detailed program of improvements and corresponding costs could be determined. Union Pacific anticipates that central traffic control, a specialized method for controlling trains and signals, would be required as part of the improvements necessary to run trains on this section of track in the future. Use of these tracks for passenger rail service would require permission from Union Pacific.

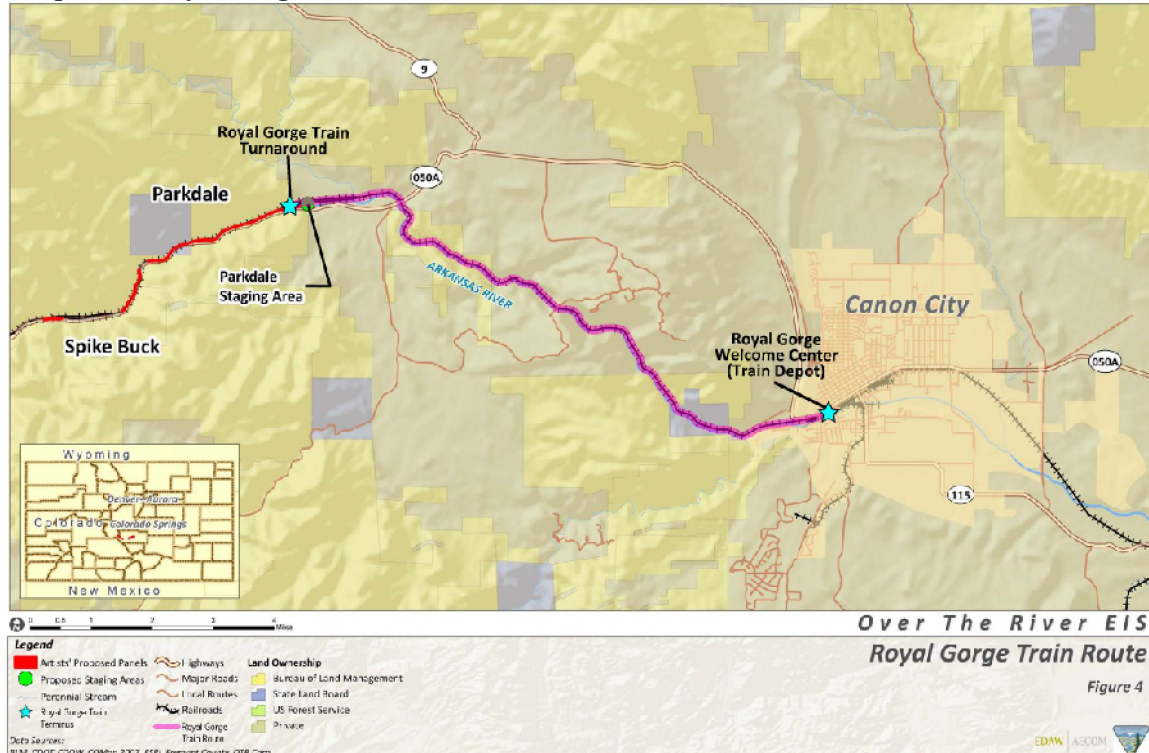
Passenger Rail

Passenger rail service is provided in the Analysis Area. The existing service provides tourists with a trip into the Royal Gorge area from a train depot in Cañon City (See Figure 4). The route is a one way linear alignment to a location near Parkdale with a reverse operation on the way back on the same tracks (no turnaround). Rail passengers are not allowed to exit their railcars at any point. Large windows and "open air" railcars provide desirable views.

Ticket prices for adults and children in 2009 range from \$32.95 to \$57.95 and \$21.50 to \$46.50, respectively. There are various classes of service offering varying levels of food, drink and entertainment. High end services can cost \$110 per person.

There are up to 17 cars available on this route. Each car has a passenger limit, but the railcar limits vary. Three departures are offered per day with an additional evening trip. Demand for existing seats on Royal Gorge trains is high in the summer months and is typically highest in July and early August.

Figure 4. Royal Gorge Train Route



Airports, Heliports, and Airspace Use (Commercial, Private, Military)

Public, private and military airports and heliports are found throughout the region. Denver International airport is located 130 miles from Cañon City. Colorado Springs International Airport is located 50 miles from Cañon City. The United States Air Force Academy is also located in Colorado Springs and has an active airfield.

There are also smaller airports and heliports located closer to the Project Area. Fremont County Airport is located southeast of the intersection of US 50 and SH 67 in Cañon City. Air traffic using this airport includes single, multi-, and jet engine aircraft as well as helicopters, ultra-light aircrafts, and gliders.

Brown's Fort Heliport is located on US 50 just outside of Cañon City. It operates from November to March, seven days a weeks from 8am to 7pm. It supports one helicopter and does not allow low altitude flyovers.

All aircraft in the Analysis Area are required to adhere to the Federal Aviation Administration (FAA) regulations. In particular, Part 91 and subsequent subparts which outline general operating and flight rules. Notice to Airmen (NOTAM) may be distributed to alert aircraft pilots of any hazards en route or at a specific location. NOTAM's would alert pilots to any of the following:

- Hazards such as air-shows, parachute jumps, kite flying, rocket launches, etc.
- Temporary Flight Restrictions (TFRs)
- Closed runways
- Inoperable radio navigational aids
- Military exercises with resulting airspace restrictions
- Inoperable lights on tall obstructions
- Temporary erection of obstacles near airfields (e.g. cranes)
- Passage of flocks of birds through airspace
- Notifications of runway/taxiway/apron status with respect to snow, ice and standing water
- Notification of an operationally significant change in volcanic ash or other dust contamination

NOTAM's would supersede normal FAA regulations.

2.1.2 Traffic

The following discussion presents information about traffic volumes, levels of service and travel times.

Traffic Volumes

Trip Generation, Origins and Destinations/Attractions

Trip generation in the Project Area is attributed to residential, commercial, institutional, recreational land uses and/or opportunities. Cañon City and Salida are tourist attractions along with the Arkansas River, BLM lands, and the facilities and services associated with the Royal Gorge Bridge and railroad. Most trips along US 50 between Cañon City and Salida are through trips with few to no stops within the Project Area, but the number of stops and percentage of vehicles stopping within the Project Area increases between May and September when more tourists are using US 50 and stopping at fishing areas, rafting sites, restaurants, shops, and other establishments in the Project Area.

Traffic Volumes, Vehicle Mix, Roadway Characteristics

Traffic data from 2008 was collected from CDOT's permanent traffic count station #000248, which is located west of Coaldale. The 2008 data was compared to similar 2005 data collected and reported in the Over The River Project Traffic Operations Analysis report prepared by David Evans and Associates, Inc. (June 2006). Comparing the 2005 traffic volumes to the 2008 traffic volumes shows there has been little to no growth in the Project Area. Therefore the 2005 traffic volumes used in the previous analysis are used in this analysis as the local existing background traffic for 2008 as to not duplicate previous analyses.

Table 2 shows the local traffic volumes for different segments of US 50. The traffic volumes in Table 2 are daily and represent a total of both directions. Table 3 shows truck mix percentages on US 50 based on 2005 data. More recent CDOT data indicates that truck mix percentages are between 8 and 18%. Table 4 shows the roadway characteristics on US 50.

Table 2. Background Traffic Volumes for Segments of US 50

US 50 Roadway Segment	Peak Summer Weekend Daily Traffic Volumes
West of Coaldale	5,150
West of CR 1A	6,350
East of CR 1A	6,400
West of SH 69	5,250
East of SH 69	5,200
East of CR 3	5,350
West of SH 9	7,550
East of SH 9	9,150
West of CR 3A (Royal Gorge)	9,800
East of CR 3A (Royal Gorge)	11,450
West of SH 115	18,400
East of SH 115	9,900

Source: OTR Project Traffic Operations Analysis (June 2006)

Table 3. US Highway 50 Truck Traffic Data (CDOT 2005)

Vehicle Type/Class	Percent
Cars	93.7%
Motorcycles	0.9%
Recreational Vehicles	1.1%
Buses	0.3%
Trucks	4.0%
Totals	100%

Table 4. US 50 Roadway Characteristics

US 50 Roadway Segment	Length	Characteristics	Posted	Shoulder
Parkdale to Texas Creek	2.5 miles	3-lane (1 EB, 2 WB)	45-50 mph	2 ft. both directions
	1.2 miles	3-lane (2 EB, 1 WB) e/o Texas Creek		
	9.1 miles	2-lane (P = 0.2 mi, NP = 6.8 mi, AP = 2.1 mi)		
	12.8 miles total			
Texas Creek to Cotopaxi	2.7 miles	3-lane (1 EB, 2 WB)	55 mph	2 ft. both directions
	3.9 miles	2-lane (P = 0.3 mi, NP = 1.5 mi, AP = 2.1 mi)		
	6.6 miles total			
Cotopaxi to Salida	1.0 miles	3-lane (1 EB, 2 WB)	25-50 mph	0-4 ft. (1-2 ft. average)
	20.1 miles	2-lane (P = 2.3 mi, NP = 7 mi, AP = 10.8 mi)		
	21.1 miles total			

Source: OTR Project Traffic Operations Analysis (June 2006)

EB = East Bound

WB = West Bound

P = Passing

NP = No Passing

AP = Alternate Passing

Levels of Service

Roadway Level of Service

As described in the OTR Project Traffic Operations Analysis (June 2006), the roadway segments comprising the US 50 corridor are generally two-lanes west of Cañon City and four-lanes east. The *Highway Capacity Manual - TRB 2000* (HCM) bases the capacity analysis for highways like US 50 in the Project Area (Class I two-lane highway), on average travel speed, percent time spent following, and capacity utilization. Average travel speed is calculated for the entire segment and reflects the speeds of both directions of travel. Percent time spent following represents the freedom to maneuver and the comfort and convenience of travel. It is a measure of “platooning” on the roadway, and is impacted by the number of passing zones, range in travel speeds, and distribution of vehicle types. Capacity utilization measures the ratio of the demand flow rate to the capacity of the facility. On highways like US 50, motorists expect to travel at relatively high speeds. US 50 in the Project Area is a major inter-city route, primary arterial connecting major traffic generators, daily commuter route, and primary in state and national highway link.

The relationship between the volume and capacity of a facility is reported through Level of Service (LOS). LOS is a qualitative measure that ranges from LOS-A, describing the highest quality of traffic flow, to LOS-F, describing heavily congested flow with traffic demand exceeding the capacity of the roadway. Table 5 presents definitions of LOS-A through F for two-lane highways and unsignalized intersections.

Table 5. Levels of Service (LOS) Definitions for Class I Two-Lane Highways

A	Average speed is in excess of 55 mph. Motorists are able to drive at their desired speed. Passing demand is well below passing capacity, platoons of three or more vehicles are rare. Percent time following is not greater than 35%.
B	Average speed is at least 55 mph. Passing demand needed to maintain desired speeds becomes significant and approximates the passing capacity. Percent time following is no greater than 50%.
C	Average speed is at least 45 mph. There are noticeable increases in platoon formation, platoon size and frequency of passing impediments. Passing demand exceeds passing capacity. Percent time spent following is no greater than 65%.
D	Average speed is at least 40 mph. Traffic flow is unstable. Passing demand is high, while passing capacity approaches zero. Mean platoon sizes of 5 to 10 vehicles are common. Turning vehicles and roadside distractions cause major shock waves in the traffic stream. Percent time spent following is no greater than 80%.
E	Average speed drops below 40 mph. Passing becomes virtually impossible and platooning becomes intense as slower vehicles or other interruptions are encountered. Percent time spent following is greater than 80%.
F	Traffic flow is heavily congested with traffic demand exceeding capacity. Passing demand is high, yet no opportunities are available.

UNSIGNALIZED INTERSECTIONS

Level of Service	Delay Range (in seconds)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: 2000 Highway Capacity Manual

Table 6 shows the existing roadway LOS for segments of US 50 during the summer weekend mid-day peak hour.

Table 6. Existing Roadway Level of Service

Summer Weekend Mid-Day Peak Hour			
Roadway Segment	Average Travel Speed (mph)	Percent Time Spent Following	Level of Service
West of Coaldale	51.5	52.5	C
West of CR 1A	50.4	59.0	C
East of CR 1A	50.5	58.5	C
West of SH 69	50.9	56.4	C
East of SH 69	50.8	57.4	C
East of CR 3	50.8	57.0	C
West of SH 9	50.1	60.7	C
East of SH 9	48.7	67.1	D
West of CR 3A	49.3	64.6	C
East of CR 3A	46.6	74.3	D
	Average Travel Speed (mph)	Density (pc/mi/ln)	Level of Service
West of SH 115	59.5	6.9	A
East of SH 115	59.5	4.1	A

Source: OTR Project Traffic Operations Analysis (June 2006)

pc/mi/ln = passenger cars per mile per lane

As shown in Table 6, all roadway segments operate at an acceptable Level of Service (LOS-D or better).

Intersection Level of Service

Currently, there are no signalized intersections in the Project Area. The Highway Capacity Manual bases the capacity analysis for unsignalized intersections on the average control delay per vehicle. For two-way stop controlled intersections, control delay is estimated for each minor (yielding) movement. The delay to side-street movements is generally controlled by the availability of gaps in the major street (US 50) traffic. Level of Service is again used to report operational performance. For two-way stop controlled intersections LOS is defined as a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Similar to LOS on roadways, six categories categorize operating performance with LOS-A representing the best operating conditions and LOS-F the worst.

Table 7 shows the summer weekend mid-day peak hour delay, volume, and Level of Service for the worst case approach. Existing turning movement volumes and intersection geometry characteristics were used in the analysis.

Table 7. Existing Intersection Level of Service

Summer Weekend Mid-Day Peak Hour				
Intersection	Delay (sec)	Approach	Volume (veh/hr)	Level of Service
US 50 at SB US 285	20.0	SBL	183	C
US 50 at NB US 285	23.6	WBL	134	C
US 50 at CR 1A	14.0	NB	27	B
US 50 at SH 69	10.2	NB	30	B
US 50 at CR 3	9.5	NB	58	A
US 50 at SH 9	13.1	SBL	72	B
US 50 at 3A	37.3	NBL	47	E
US 50 EB at SH 115	18.8	EBL	264	C
US 50 WB at SH 115	18.8	WBL	55	C

Source: OTR Project Traffic Operations Analysis (June 2006)

NBL = North Bound Left Turn

SBL = South Bound Left Turn

EBL = East Bound Left Turn

WBL = West Bound Left Turn

veh/hr = vehicles per hour

As shown in Table 7, only the existing unsignalized intersection at US 50 and CR 3A performs at an unacceptable Level of Service (LOS-D or below). This is due to a high volume of vehicles traveling northbound on CR 3A turning left onto westbound US 50. The analysis performed in the OTR Project Traffic Operations Analysis report shows the vehicles making this turning movement experience an average delay of 37 seconds. All other analyzed intersections perform at acceptable Levels of Service (LOS-C or better).

US 50 Travel Times

Travel times along US 50 are steady, except during hazardous weather conditions or delays caused by an accident or construction. Travel times between Cañon City and Salida are typically characterized by travel at or near the posted speed limit. Travel between the two cities (58 miles) typically takes about one hour and ten minutes. The Project Area is approximately 42 miles long and the travel time through the Project Area is estimated to be 51 minutes.

2.1.3 Traffic Safety

US 50 Roadway Accident Data

In September 2008, CDOT performed a safety assessment report of US 50. The primary intent of the report was to aid CDOT Region 2 in their assessment of US 50 from MP 221.00 to 275.00, which includes the entire Project Area. The report analyzed accident data history for a period of five years (January 1, 2000 through December 31, 2004).

The analyzed portion of US 50 was broken into 15 segments of varying lengths and analyzed individually. The Project Area is included in 12 of the 15 segments. When comparing each segment individually and considering total accidents, the safety assessment indicates that the

majority of the segments exhibit accident frequency that is well within the expected range when compared with other Rural Mountainous Two-Lane Highways in Colorado. The same outcome can be said when analyzing injury plus fatality accidents.

Although each segment exhibits accident frequency within the expected range, there are isolated locations and accident types that stand out. Table 8 presents traffic safety information for US 50 based on the pattern recognition analysis done in the safety assessment study. Table 8 provides a summary of the accident types with higher than expected frequency when compared to similar rural mountainous, two-lane highways and notes the factors and comments associated with those types. It should be noted that the safety study only assessed the accident history and provided general suggestions on appropriate ways of mitigating a particular accident type.

Table 8. Higher than Expected Accident Frequency by Accident Location and Type

US 50 Roadway Segment	TOTAL – PDO/INJ/FAT	Accident Types (concentrated)	Factors
1 – MP 222.67 to MP 227.15	43 – 30/12/1	Embankment, guard rail, head-on	Driver unfamiliarity, adverse road conditions, fell sleep
2 – MP 227.22 to MP 230.0	31 – 20/11/0	Embankments, rear-ends	Driver unfamiliarity, adverse road conditions
3 - MP 230.01 to MP 233.35	36 – 16/18/2	Overtaking, head-on, fixed object (guard rail and boulders)	Adverse road conditions
4 - MP 233.65 to MP 235.26	17 – 12/5/0	Wild animal (234.0-235.2)	(No pattern)
5 - MP 235.72 to MP 239.37	22 – 12/9/1	Wild animal (235.9-238.3), overturn	Adverse road conditions, narrow clear zone (geometry)
6 - MP 239.41 to MP 242.07	32 – 20/12/0	Fence (239.4-241.4), wild animal (239.9-241.9)	Narrow clear zone (geometry)
7 - MP 242.13 to MP 245.38	30 – 17/12/1	Guard rail, overturns (242.7-244.4)	(No pattern)
8 - MP 245.42 to MP 249.0	29 – 16/12/1	Overturn (245.7-247.4)	(No pattern)
9 - MP 249.01 to MP 252.57	19 – 16/3/0	Large boulder, wild animal (250.1-252.5)	At night, unlighted
10 - MP 252.71 to MP 257.0	18 – 10/8/0	Embankment, guard rail	Adverse road conditions
11 - MP 257.01 to MP 262.0	34 – 21/12/1	Rocks in roadway, guard rail, large boulders	Adverse road conditions
12 - MP 262.01 to MP 267.29	40 – 21/19/0	Large boulder, embankment (262.9-265.2)	Adverse road conditions

Source: CDOT, Safety Assessment Report (Sept 2008)

(262.9-265.2) = Milepost References Along U.S. 50

MP = Milepost

PDO = Property Damage Only

INJ = Injury

FAT = Fatality

Other Accident Data

Concerns have been expressed regarding the segment of the Project Area with multiple curves between MP 229.5 and MP 231.5. The segment is east of the Chaffee County line. As

presented in the OTR Project Traffic Operations Analysis (June 2006), there were a total of eighteen crashes within that segment of the corridor in the three-year study period. Some characteristics of these segment crashes are shown in Table 9.

Table 9. US 50 Accident Characteristics (MP 229.5 – MP 231.5) (2001-2003)

	Number of Crashes	Percent of Total Crashes
Number of Vehicles		
Single Vehicle	21	81%
Multiple Vehicle	4	15%
Unknown	1	4%
Season		
Winter (December - February)	7	27%
Spring (March - May)	4	15%
Summer (June - August)	5	19%
Fall (September - November)	10	38%
Pavement Condition		
Dry	18	69%
Wet	1	4%
Snowy/Icy	6	23%
Unknown	1	4%
Lighting Condition		
Daylight	15	58%
Dark-Unlighted	9	35%
Dusk/Dawn	1	4%
Unknown	1	4%
Accident Type		
Overtaking	5	19%
Head-on	2	8%
Rear-end	1	4%
Culvert	1	4%
Guard Rail	4	15%
Embankment	3	12%
Sideswipe	1	4%
Not Reported	9	35%
Contributing Factor		
None Apparent	14	54%
Asleep	2	8%
Driver Inexperience	1	4%
Driver Preoccupied	4	15%
Unfamiliar Driver	3	12%
Driver Emotionally Upset	1	4%
Unknown	1	4%

Source: OTR Project Traffic Operations Analysis (June 2006)

In summary, the regional roadways and key intersections have accident rates that are within the normal range for similar roads.

2.1.4 Mobility and Access

The following discussion briefly describes issues involving the ability of motorists to move within the Project Area and Analysis Area and to access public and private properties.

National, State and Regional Issues

The US Interstate System and US Highway System provide high level mobility and access across the United States. These systems handle the vast majority of interstate travel and intrastate commerce (freight truck traffic). As noted in Section 2.1.1, US 50 serves a role in intrastate and interstate travel and is a key regional access route in central Colorado.

Residential and Business Issues

US 50 is the only access route for many residents and businesses and in some instances is the only available access route. Disruptions of traffic flow on US 50 and/or across the Arkansas River can have substantial mobility and access impacts including economic and fiscal effects if the disruptions alter travel volumes for an extended period of time.

Emergency Access

Figure 1 presents the regional roadway network. This figure also clarifies potential US 50 detours and evacuation routes that could be used by the traveling public as evacuation routes or by police cars, fire trucks and ambulances in the event that US 50 is closed. These alternate routes add travel time for travelers and emergency service personnel during US 50 closures.

Parking (Along US 50)

Parking in the Project Area involves informal turnouts, pulloffs, and formalized parking areas. The formalized parking is associated with retail and other commercial establishments and various recreation facilities and resources.

Parking demand is higher between May and September and is typically highest in July and early August. Existing facilities typically are able to handle peak demand for parking. Some overflow can occur on summer weekends for short periods of the day.

2.2 Current Management Considerations

The following discussions summarize current management considerations associated with transportation issues. The key agencies and organizations include the Bureau of Land Management, CDOT, the Colorado State Patrol, and Union Pacific Railroad. These discussions summarize the discussions presented in the Draft Analysis of the Management Situation for the Over The River Project, dated June 2009.

2.2.1 Bureau of Land Management

Responsibilities and Procedures

The BLM's responsibilities and procedures for managing transportation and transportation issues are described in the 1996 Royal Gorge Field Office Resource Management Plan (RMP).

Plans, Policies, Goals and Objectives

The BLM's management objective for transportation and traffic is to improve and maintain the transportation system to facilitate public access and administrative monitoring as well as minimizing roads on BLM administered lands (Proposed RMP/Final EIS [1995]). The BLM's management actions focus on roads and trails that are not managed by other Federal agencies (Federal Highway Administration), the Colorado Department of Transportation (CDOT), local governments (Counties and Cities) or private property owners. The management actions address the need to match the BLM maintenance and access controls (open, closed or limited) with public access needs and appropriate resource management.

2.2.2 Colorado Department of Transportation

Responsibilities and Procedures

CDOT is responsible for a 9,161 mile highway system, including 3,775 bridges. Each year, this system handles over 28.6 billion vehicle miles of travel. CDOT maintains the highway system, supports aviation interests statewide, provides assistance to numerous transit systems and helps local law enforcement agencies with special funds.

CDOT's vision is "to enhance the quality of life and the environment of the citizens of Colorado by creating an integrated transportation system that focuses on moving people and goods by offering convenient linkages among modal choices." CDOT's mission is "to provide the best multimodal transportation system for Colorado that most effectively moves people, goods, and information."

Governing Plans, Programs and Policies

CDOT, along with Metropolitan Planning Organizations (MPOs), Transportation Planning Regions (TPR's), regional and local governments (cities, counties and special districts), the Federal Highway Administration, the Federal Transit Administration, the Federal Railroad Administration and the Federal Aviation Administration, oversees transportation planning, programming, design, construction and operation of transportation facilities in Colorado.

CDOT's Rural Liaison Planning Unit (RPU) coordinates planning efforts for Colorado's 15 Transportation Planning Regions (TPRs). There are 10 rural TPRs and 5 urban TPRs, also called Metropolitan Planning Organizations. The RPUs coordinate efforts with planning staff in each of CDOT's six Regions, discussing planning policy and ensuring consistency around the state. The Project Area is located within TPR 14 Central Front Range and TRP 8 San Luis Valley. CDOT Regions 2 and 5 share the responsibilities for US Highway 50 and the state roadway network in

the Project Area. Region 2 covers over 90 percent of the US 50 corridor between Cañon City and Salida and the surrounding roadway network. Region 2 is taking the lead on the project, but Region 5 is also involved.

CDOT's Statewide Planning and Support Unit coordinates planning efforts for inclusion in the Long Range Statewide Transportation Plan, as well as the State Transportation Improvement Plan (STIP). Current efforts include working with the Transportation Commission and CDOT's Regional / MPO Planning Unit on an update to the 2030 Statewide Transportation Plan Moving Colorado □ Vision for the Future. The improvements in the current plans are summarized in the following discussion under the heading Management Actions.

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA). As a result, Colorado will receive over \$500 million for transportation projects statewide with CDOT receiving approximately \$330 million in federal highway funding and another \$12.5 million in federal transit funding for transit projects in non-urbanized rural areas. The ARRA will also provide the additional transportation funding directly to transit agencies and the three large metropolitan planning organizations in the state (Denver Regional Council of Governments, Pikes Peak Area Council of Governments and the North Front Range Metropolitan Planning Organization) for their prioritized projects. As a requirement of ARRA, CDOT must have 50 percent of its funding committed to projects within 120 days. The ARRA improvements in the Analysis Area are summarized in the following discussion under the heading Management Actions.

Management Actions

State Transportation Improvement Plan (STIP)

Based on a review of the most recently approved Pueblo Area Council of Governments/Transportation Planning Region 2008 - 2013 Transportation Improvement Program (TIP) and the CDOT 2008 - 2013 State Transportation Improvement Program, there are no substantial projects anticipated between 2009 and 2013 that would impact US 50 between Cañon City and Salida either positively or negatively. There are many projects that would impact key roads that could be used as alternative routes. Most of these projects are resurfacing projects, bridge repair projects, or isolated safety improvements.

American Recovery and Reinvestment Act of 2009 (ARRA)

The only project in the list that involves roadways in the Analysis Area is 12.5 miles of asphalt resurfacing of US 24 and 285 in and near the U.S 24/285 intersection, Johnson Village and the Central Colorado Regional Airport.

Regular and Scheduled Activities and Timeframes

In addition to management actions that are planned and programmed within the STIP or are being advanced as a result of ARRA, CDOT operations and maintenance includes various actions that relate to the roadway network such as routine and emergency snow and rock

removal and emergency road repair. These activities are routine and scheduled in advance or are implemented in response to unanticipated or unplanned events.

Guidance

CDOT guidance covers a wide range of topics from asphalt paving to environmental impact documentation to interchange design. The primary guidance includes:

- CDOT Standard Specifications for Road and Bridge Construction, 2005
- CDOT M&S Standard Plans, 2006
- CDOT Roadway Design Guide, 2005
- American Association of State Highway and Transportation Officials Roadside Design Guide, 2004
- American Association of State Highway and Transportation Officials Geometric Design of Highways and Streets, 2004
- U.S. Department of Transportation Manual of Uniform Traffic Control Devices for Streets and Highways, 2003

2.2.3 Colorado State Patrol

Responsibilities and Procedures

The Colorado State Patrol (CSP) is one of five divisions of the Colorado Department of Public Safety (CDPS). The mission of the CDPS is to provide a safe environment in Colorado by maintaining, promoting and enhancing public safety through law enforcement, criminal investigations, fire and crime prevention, recidivism reduction and victim advocacy. The CDPS also provides professional support of the criminal justice system, fire safety community, other governmental agencies and private entities. Throughout, the CDPS goal is to serve the public through an organization that emphasizes quality and integrity.

Governing Plans, Programs and Policies

CSP led the state's remarkable improvements in traffic safety during the last three years, recording the nation's greatest reductions in traffic fatalities among states. Figures for 2006 reflect a continuing trend of improvement while the nation experienced additional traffic deaths. CSP's accomplishments result from targeting sections of highway with the highest rates of unsafe driver behavior.

CSP is a progressive law enforcement agency and relies heavily upon state of the art technology, such as in car video cameras, mobile data computers, digital trunked radio systems, and laser speed measuring devices, to perform its traffic safety mission. CSP has committed to a safe and secure future for the citizens of Colorado, and will contribute to that future through:

- Building partnerships with citizens and communities to enhance public safety.
- Building partnerships with other state, county, and municipal agencies to enhance law enforcement services in the state.

2.2.4 Union Pacific Railroad

UPRR parallels the Arkansas River throughout the proposed Project Area. This portion of the rail line is currently inactive and UPRR has indicated that the line is not anticipated to become active in the foreseeable future. The line has not been abandoned, but has been “rail banked”, which is an important distinction. The line has not been operational since the mid 1990s.

If the tracks were to be reactivated, a substantial amount of upgrade to the track along with signals and other infrastructure would be required at a significant cost.

UPRR does not allow public access to rail corridors and requires fencing in some cases to prevent public access. Special arrangements and requirements apply to passenger service operations if they occur on UPRR tracks.

2.2.5 Other

The responsibilities and procedures of the Fremont County Sheriff, Chaffee County Sheriff, Salida Police and Fire Departments, Cañon City Police and Fire Departments and county emergency response providers are discussed in EIS Sections 3.12 and 4.12 (Socioeconomics, Social Impacts and Public Safety). Sheriff and police services provide important traffic control and safety services in support and in cooperation with the Colorado State Patrol.

3.0 FUTURE NO ACTION (BACKGROUND) TRAFFIC CONDITIONS (2013)

Background traffic is defined as traffic on the roadway under the No Action scenario. Weekend day and weekday daily traffic volumes were examined from Colorado Department of Transportation (CDOT) data from the automatic traffic recorder (ATR #000248) on US 50 near Coal Dale. Based on 2005-2008 July and August traffic volumes from the ATR, it was determined that the 2005 background traffic volumes from *The Over The River Project Traffic Operation Analysis* report prepared by David Evans and Associates, Inc. (June 2006) are still valid for 2008 background traffic volumes. CDOT estimates a 1.5% yearly growth factor in the area. This growth rate was used to estimate 2013 background traffic volumes.

This process led to an estimation of the traffic volumes under a No Action scenario; however these volumes have a local and visitor traffic component. The visitation estimation comprises all visitors to the Project Area, for any and all purposes, i.e. viewing of the art, rafting, camping. An adjustment was made to the No Action scenario traffic volumes to avoid counting visitors to the Project Area twice. Based on reviewing an entire year of monthly traffic volumes from the Coal Dale ATR, it was estimated that approximately 40% of the traffic on US 50 during the summer months is visitor traffic. Background traffic volumes on US 50 in the project area were then appropriately adjusted down by 40% so that visitor traffic was not double counted.

Table 10 presents estimated 2013 No Action traffic volumes for segments of US 50. Tables 11 and 12 provide 2013 LOS for roadways and intersections under 2013 No Action conditions, respectively.

Table 10. 2013 No Action Summer Traffic Volumes for Segments of US 50

US 50 Roadway Segment	Peak Summer Weekend Daily Traffic Volumes
West of Coal Dale	5,650
West of CR 1A	6,950
East of CR 1A	7,000
West of SH 69	5,750
East of SH 69	5,700
East of CR 3	5,850
West of SH 9	8,250
East of SH 9	10,050
West of CR 3A (Royal Gorge)	10,700
East of CR 3A (Royal Gorge)	12,500
West of SH 115	20,100
East of SH 115	10,800

Source: OTR Project Traffic Operations Analysis (June 2006)

Notes: Includes local and visitor traffic

Table 11. 2013 No Action Roadway Level of Service

Weekend Summer Mid-Day Peak Hour			
Roadway Segment	Average Travel Speed (mph)	Percent Time Spent Following	Level of Service
West of Coaldale	51.2	54.6	C
West of CR 1A	50.1	60.8	C
East of CR 1A	50.2	60.4	C
West of SH 69	50.9	56.4	C
East of SH 69	50.4	59.4	C
East of CR 3	50.4	58.8	C
West of SH 9	49.6	62.8	C
East of SH 9	48.1	69.4	D
West of CR 3A	48.7	67.0	D
East of CR 3A	45.7	76.5	D
Average Travel Speed (mph)			
West of SH 115	59.5	7.6	A
East of SH 115	59.5	4.5	A

Source: OTR Project Traffic Operations Analysis (June 2006)

pc/mi/ln = passenger cars per mile per lane

Note: Includes local and visitor traffic

Table 12. 2013 No Action Intersection Level of Service

Weekend Summer Mid-Day Peak Hour				
Intersection	Delay (sec)	Approach	Volume (veh/hr)	Level of Service
US 50 at SB US 285	24.1	SBL	200	C
US 50 at NB US 285	29.5	WBL	147	D
US 50 at CR 1A	15.0	NB	29	B
US 50 at SH 69	10.5	NB	33	B
US 50 at CR 3	9.6	NB	63	A
US 50 at SH 9	13.9	SBL	79	B
US 50 at 3A	51.3	NBL	51	F
US 50 EB at SH 115	22.5	EBL	289	C
US 50 WB at SH 115	21.3	WBL	60	C

Source: OTR Project Traffic Operations Analysis (June 2006)

NBL = North Bound Left Turn

SBL = South Bound Left Turn

EBL = East Bound Left Turn

WBL = West Bound Left Turn

Note: Includes local and visitor traffic

4.0 METHODS FOR ESTIMATING TRAFFIC FOR THE PROJECT ALTERNATIVES

4.1 Transportation Measures Common to All Build Alternatives (Event Management Plan: Traffic Management Measures)

Various traffic management measures are common to all of the alternatives. Exceptions are noted where applicable. All of the following measures are subject to refinement and compliance with applicable federal, state and local policies and procedures.

4.1.1 Installation

Communications

During the installation phase, each construction crew would have DTRs capable of connecting directly with local emergency service providers which would require permission from the State of Colorado Division of Telecommunications to utilize the 800 MHz DTR radio system to allow communication with various federal, state and county public safety agencies.

If permitted, emergency service communication and coordination would occur via the designated state DTR system. Exact channels and protocol would be identified prior to project implementation. OTR staff communications would take place on augmented DTR through a private lease of space on existing towers and/or cell signal boosters using portable temporary cell equipment.

Workforce

To the extent possible, crews would be hired from local canyon communities, such as Cañon City or Salida. Non-local contractor staff would be housed in local communities and would be expected to carpool to the work sites. Contractor parking and staging would be concentrated at the central staging area; however, a small amount of vehicle parking may be required at various locations throughout the corridor as the work progresses. Contractors parking at AHRA fee sites will be required to have a valid Colorado State Parks pass unless an alternate method of payment is negotiated with State Parks. On the highway side, this parking would occur at existing informal pullouts as much as possible. Where not possible, work vehicles would be located within the 400-foot work/closure zone and protected in accordance with the Manual for Uniform Traffic Control Devices (MUTCD) and Colorado Department of Transportation (CDOT) M & S Standards.

Traffic Management

Traffic management during the installation phase would consist of normal construction activity traffic management techniques and equipment. Normal traffic control activities and devices, as defined in the MUTCD and CDOT's Standard for Traffic Control Plans (shown in their M & S Standards), would be utilized to facilitate closures or to notify travelers of construction activities in the corridor.

CDOT Region 2 and 5 lane closure policies would be followed for all installation activities requiring partial or full lane closures on US 50. All methods of handling traffic and speed

reductions will be submitted to CDOT for review and approval prior to beginning any work. CDOT will typically need at least two weeks to review submittals prior to commencing work.

All methods of handling traffic and speed reductions will be submitted to CDOT for review and approval prior to beginning any work. CDOT will typically need at least two weeks to review submittals prior to commencing work.

No highway closures would be necessary during the anchor surveys because this work would not require immediate use of the highway; the survey crew would be working on the railroad side of the river or, when on the south side of the river, between the guardrail and the high water line. Warning signs, however, would be provided to caution drivers that a crew is working in proximity to the highway. CDOT would be consulted regarding additional safety measures.

Installation work requiring lane closures on US 50 would not be performed during the peak summer months (between Memorial Day and Labor Day). During work phases, any lane closures required on westbound US 50 for construction would be limited to one lane for up to 400 feet per activity location, and would not occur at intervals less than 10 miles apart. Consequently, no more than four lane closures locations would exist on a single day between Parkdale and Salida. The duration of a single lane closure would vary depending on the nature of the equipment needed at that location, how many installations are needed at that location and the equipment needed for the other installations. Lane closures would be accomplished through a combination of techniques, including flagging, pilot cars, and barricades, as appropriate.

For the duration of the installation, portable variable message signs (VMS) would be located near Parkdale and Texas Creek for westbound traffic, and near Salida and Texas Creek for eastbound traffic. The signs would inform all US 50 travelers of daily construction activities and upcoming construction activities, their location, and expectations of delays, if any. In addition, daily activity summaries would be provided to local media for broadcast as part of their community information services.

Access

Local residential access would be maintained at all times during the construction phase.

Some informal parking pullouts used for private recreational access could be closed for short periods (1-2 days) during the installation phase. Due to the 400-foot maximum lane closure stipulation and the separation of installation activity areas by at least 10 miles, it is anticipated that no more than one pullout would be closed at any given time.

Recreational access for commercial and private rafting would continue to occur under the rules set by the BLM and Colorado State Parks during the installation phase. Angling activities would be impeded by installation of the cables and fabric panels in the latter stages of installation.

Security

OTR Corp would employ private security to patrol the installation areas and the staging and laydown area once installation begins to ensure protection of work equipment and to minimize the

potential for criminal activities. Equipment and materials stored in the central staging and laydown area would be located inside a secure area to prevent theft and vandalism. A private security team would provide additional "eyes on" the corridor during the installation phase in the event of suspicious activity, accident, emergency, fire, etc., and would be able to report this activity immediately to local law enforcement or emergency service providers.

Railroad Use and Upgrades

Recent UPRR investigation of the track in the project area indicates that the track would not require extensive upgrades for the limited use planned by OTR. However, UPRR would require inspection and upgrade, if necessary, of the current rail track prior to use during any OTR project phase. If upgrades are determined to be necessary, UPRR would dictate the level of repair necessary.

4.1.2 Exhibition

General

The exhibition period would begin after the installation of the art is complete; no construction or installation activities would occur during this phase of the project.

The artists would not require or collect admission fees for viewing. Although OTR would be a "no admission fee event," many viewers would likely experience the project from commercially operated transit buses or boating outfitters, operating independently of the artists and OTR Corp. OTR Corp would not organize bus tours for the exhibition phase. However, private businesses may set up and advertise bus tours during this phase. These businesses would be required to use property outside the management corridor for staging. It is expected that any private business operating bus tours in this area would need to obtain all required local, county, or state permits.

The artists intend for visitors to view the art by raft, kayak, or other watercraft from the river, or by automobile from the highway. Pedestrian access to the exhibit would be limited to the Parkdale Viewing Center. Bicyclists would only be permitted in the corridor Monday through Thursday. Each of these viewing options and/or travel modes is discussed in detail in the following subsections.

Prohibited Uses and Restricted Areas

Pedestrian travel would not be allowed along US 50 during the exhibition period. At designated parking areas (i.e., Parkdale), event staff and signage would prevent visitors from walking along US 50.

Organized bicycle events that require a special event or use permit (i.e., guided tours or century rides) would not be allowed on US 50 in the project area during the exhibition period.

Individual bicycle travel along US 50 would be prohibited on Fridays, Saturdays, and Sundays during the exhibition. SH 9 would be the designated alternate route for bicycles on these days.

Aerial viewing of the art is not a planned or encouraged activity. Prior to the event, OTR Corp would meet with local and TRACON Air Traffic Organization officials from the Federal Aviation Administration to coordinate the issuance of a NOTAM (and other appropriate notice) to impose special, temporary airspace-use restrictions in the vicinity of the project site. For air safety, ground safety, and terrorism safety concerns, it is planned that sightseeing (i.e., low-level) overflights of the site will be prohibited or severely restricted.

All pullouts on US 50 and CR 45 within 0.5 mile of any fabric panel would be closed; this includes pullouts located on the south side of the highway. The pullout closures would be designed such that the pullouts would be accessible in the event of an emergency. Also, vehicles would not be allowed to stop along US 50 within 0.5 mile of any fabric panel.

Dispersed camping is allowed on all BLM land in the project area. However, in the Texas Creek Travel Management Area, current policies prohibit dispersed camping more than 100 feet from existing roads. During the exhibition period, a temporary prohibition on camping would be imposed on all BLM lands located within 0.5 mile of any fabric panel.

Project staff, including staff at each of the panel sites, and law enforcement personnel stationed throughout the corridor, would be responsible for enforcing these requirements.

Event Visitor Information Centers and Visitor Facilities

Generally, three event visitor information centers would be established along the corridor. During the exhibition period, an appropriate number (approximately 25) project staff would be stationed at each of these locations to distribute information and answer questions regarding the rules along US 50, fire danger and minimization, viewing opportunities, traffic conditions, and other pertinent information. Additionally, restroom facilities, water, and information would be available at Vallie Bridge.

Fremont Road Information Center

The Fremont Road Information Center would serve as the primary capture point for visitors from the east. The Fremont Road Information Center would be located on approximately 10 acres of private land, 1.2 miles east of the SH 9/US 50 intersection. The proposed site would provide parking for approximately 900 cars. Information about the project, current traffic conditions, viewing rules and guidelines, emergency services in the corridor, and other area attractions would be available at this location. No overnight parking or camping would be allowed at this location. Water, restroom, and waste facilities would be available. These services are discussed in further detail later in this section.

Parkdale Viewing Center

The Parkdale Viewing Center would be located on approximately 13 acres of private land on the north side of the river, immediately west of the Harvey Bridge and AHRA recreation site. The proposed site would provide parking for approximately 900 vehicles. Information about the project, current traffic conditions, viewing rules and guidelines, emergency services in the corridor, and other area attractions would be available at this location. Additionally, at this

viewing area, visitors would have the opportunity to exit their vehicles and walk under the panels on the upstream side of the bridge. The parking area would be signed as half-hour parking only to encourage vehicle and visitor turnover. No overnight parking or camping would be allowed at this location. Water, restroom, and waste facilities would be available. These services are discussed in further detail later in this section.

The primary access into the Parkdale Viewing Center is the one-lane Harvey Bridge over the Arkansas River. Upgrades to this bridge would be necessary to accommodate reasonable visitor and quarry traffic flows in and out of the Parkdale Viewing Center. These upgrades are discussed in further detail in the traffic management discussion for this alternative.

The Parkdale parking area would consist of a gravel or aggregate surface without delineation of individual parking spaces. Parking monitors would assess and direct parking traffic during peak visitation times.

Texas Creek Limited Rest Stop

Texas Creek would also serve as a minor event visitor limited rest stop during the exhibition period. The Texas Creek Limited Rest Stop would be located on BLM lands cooperatively managed with Colorado State Parks under the terms of a Recreation and Public Purposes lease. The site would consist of up to 56 acres on the north side of the Arkansas River and would provide parking for 30-40 cars. Information about the project, current traffic conditions, viewing rules and guidelines, emergency services in the corridor, and other area attractions would be available. No overnight parking or camping would be allowed. Water, restroom, and waste facilities would be available at this location. These services are discussed in further detail later in this section.

The primary access into the Texas Creek Limited Rest Stop is a one-lane bridge over the Arkansas River. No upgrades to this bridge are proposed. Ingress/egress traffic would be managed by flaggers at either end of the bridge. The Texas Creek Bridge is discussed in further detail in the traffic management discussion for this alternative.

Vallie Bridge Limited Rest Stop

A visitor rest stop would be provided at Vallie Bridge; however, visitor uses at this location would be limited to restrooms, waste disposal, and potable water provided by OTR. Panel viewing opportunities, interpretive exhibits, and overnight parking or camping would not be available at this location. The Vallie Bridge Limited Rest Stop would be located at a small (<1 acre), existing AHRA recreation site. The Vallie Bridge Campground would not be open to event parking. This rest stop would be staffed with approximately eight event staff to assist visitors with information and questions. This rest stop is intended for short-term use only. Visitor parking would be limited to five minutes at this site to maintain river access for commercial rafting as well as other recreational users of the corridor.

Salida Information Center

The Salida Information Center would serve as the primary capture point for visitors arriving from the west. The Salida Information Center would be located on one of three sites on private land. The proposed information center would provide limited parking and visitor service facilities. Information about the project, current traffic conditions, viewing rules and guidelines, emergency services in the corridor, and other area attractions would be available at this location. No overnight parking or camping would be allowed at this location.

Event Staffing and Command Operations

An event management Command Post would be located at the Texas Creek Limited Rest Stop warehouse. During the exhibition phase, staff from Colorado State Patrol (CSP), CDOT, BLM, Colorado State Parks, Chaffee County Sheriff Department, Fremont County Sheriff Department, the OTR event supervisor, and traffic maintenance contractor representatives would be on site to ensure timely decision making and response times as well as effective coordination. During the off-peak hours (8pm-8am), the Command Post would be staffed with one person responsible for coordination of nighttime staff, security, and emergencies. The Command Post would also serve as a central lost-and-found repository.

The operations center shall have temporary travel demand monitors placed throughout the exhibit corridor to determine vehicle progression speeds and volume to capacity ratios for individual lanes. The operations center should be able to call out law enforcement and emergency response personnel to respond to identified problems and update VMS boards.

Exhibition phase communications would be managed through the Command Post at Texas Creek. The general method of communication between agencies, event staff, and emergency personnel would be 800 megahertz digital radios (DTR) or VHF radios. At this time, CSP and ambulance providers carry this equipment. Currently, only two BLM fire engines are equipped with hand-held DTR units. Due to the existing VHF radio infrastructure and the significant expense required to convert and replace this equipment, it is unlikely that the BLM will have converted to DTR systems before the exhibition period. CSP and BLM also have VHF radios in their vehicles to communicate with agencies that have not yet upgraded to DTR. Fremont and Chaffee County Sheriff's Offices are in the process of acquiring funding to convert to DTR. It is anticipated this would be completed by the exhibition phase. However, if these agencies or other local responders, such as search and rescue and fire departments, have not migrated to DTR by the start of the exhibition period, OTR Corp would provide temporary DTRs for use during the exhibition phase to ensure seamless communications. The exact communication plan would be developed with input from all providers and approval from the Pueblo Communications Center prior to the exhibition phase.

In addition to Command Post staff, supervisors and panel monitor staff would be stationed throughout the corridor. Two supervisors would be located at the Parkdale Viewing Center; one supervisor would be located at each of the other panel sites. The supervisor would be responsible for monitoring the panel installations and traffic, emergency, or other conditions in the immediate vicinity and reporting emergencies or concerns to the Texas Creek Command Post.

The ratio of supervisors to monitor staff would be approximately 1:20. Supervisors would be equipped with DTRs capable of communicating directly with the Command Post.

Approximately 25 monitors would be stationed at each of the event limited rest stops to assist visitors with questions and information and to monitor trash.

In addition to the monitors at the event visitor limited rest stops, approximately 100-150 monitors would be stationed throughout the corridor and distributed between the fabric panel areas between 8am-6pm daily. Monitors are intended to maintain surveillance of the fabric panels and would communicate with the fabric panel area supervisor in the event of an emergency or any problems. Due to traffic flow and personal safety concerns, monitors would be located on the railroad side of the river. The ratio of supervisors to monitor staff would be approximately 1:20 throughout the project corridor. Monitors would be in place from 8am-6pm during the exhibition phase and would park at the Texas Creek Limited Rest Stop. From there, monitors would be transported to their location for the day via rail car.

Local resident panel monitors would be responsible for providing their own transportation to the project area on a daily basis. Parking for panel monitors would be provided at Texas Creek Limited Rest Stop. Out-of-area panel monitors would have access to a daily monitor transport shuttle to Texas Creek Limited Rest Stop. Monitors would be transported to their duty station by rail car. Event visitor information center monitors would be allowed to park at the event visitor information centers. Vallie Bridge Limited Rest Stop monitors would be taken to their duty station via a shuttle service from Texas Creek Limited Rest Stop.

Event visitor information center monitors would have access to water and restroom facilities at their duty station. Rail cars would run throughout the day to provide breaks and necessary supplies to panel monitors stationed on the railroad side of the river.

Private security would be employed to monitor all fabric panel areas, event visitor information centers, and the central staging area. Security personnel would be on duty at these locations between the hours of 6pm-8am during the week prior to the exhibition phase and during the exhibition phase.

Night monitor operations on the highway side would be provided by private security contractors in roving vehicles. Night monitor operations on the railroad side would be provided by private security contractors using rail-mounted vehicles. OTR Corp would provide 24-hour security and surveillance using a combination of private security (night) and monitors (day).

Signage and Traffic Information

Daily updates would be provided to local and regional media about expected traffic conditions and event activities. Any emergency messages of a corridor-wide or regional nature would be communicated to local and regional media outlets through the Command Post.

Highway advisory radios would be used to provide real-time traffic information during the event. At least three radios would be needed to communicate travel time delays, road closures, emergency evacuation information, and other traffic information.

VMS would be located in several locations in the corridor as well as in areas approaching the corridor, such as west of Salida at the intersections of US 285 and US 50, or east of Cañon City at the intersection of CO 115 and US 50. VMS would be used to communicate event information, emergency messages, and traffic conditions; and provide motorists with information about the status of the parking lots at Parkdale and Texas Creek.

Temporary signage would be used along the US 50 corridor to clarify special limitations and to increase adherence to existing and special limitations.

Highway Use and Speed Limits

All local highways and roads would remain open to traffic at all times unless congestion reaches unacceptable levels. If congestion reaches unacceptable levels and CSP and/or CDOT determined that these conditions present safety or other problems, closures, diversions, detours and/or other measures would be implemented. The details would be determined by CDOT and CSP based on their standards and policies and the situation experienced.

Throughout the corridor, temporary speed reductions of 10 mph should apply during daylight hours at all exhibition sites. For example, in exhibition areas where the current speed limit is 45 mph, the speed limit would be reduced to 35 mph.. CDOT's speed limit reduction process, involving submittal of Form 568, will be processed in advance.

Traffic Monitors, Patrols and Controls

Temporary signals will be used to manage travel demand at major intersections and recreation sites. The major intersections include: Royal Gorge, SH 9, County Road 27, the road to the back side of Royal Gorge, Harvey Bridge, Cotopaxi, CR 45, Pinnacle Rock, and Spikebuck. Due to the fluctuating nature of visitation, the signals shall be operated by a trained traffic technician to determine when a signal phase is activated. Intersection operations at would be managed by a temporary traffic signal between 10:00am-4:00pm Friday through Sunday, and as needed at other times based on traffic conditions. Off-duty police are a likely source of uniformed traffic controllers. The frequency and duration of each intersection movement allowed by the uniformed traffic controllers would be in response to actual traffic volumes, standard practices, and safety requirements.

In non-peak hours, the temporary signal would be flashing yellow. Traffic lane delineation will be established with temporary striping for non peak conditions and with cones for peak conditions at the Parkdale and Texas Creek intersections to increase traffic flow efficiency and provide clarity for motorists.

Uniformed traffic control officers with traffic law enforcement authority would be stationed throughout the greater project area to monitor and control key intersections on weekends in specific locations. The uniformed traffic control officers may be CSP personnel or may be provided by other approved sources.

Temporary traffic control devices will be used in select locations along US 50 for various purposes, such as reduction of head-on crashes or for prohibiting unsafe turning movements.

Traffic lane limits would be established with cones at the Parkdale and Texas Creek intersections to increase traffic flow certainties and efficiencies.

Temporary traffic control devices would be installed at Parkdale to prevent eastbound motorists on US 50 from turning left into Parkdale. This is necessary to prevent long delays and safety issues that would occur if left turns were allowed.

A median barrier (vertical panel) should be placed along the U.S. 50 centerline at each “open” pullout between Texas Creek and Parkdale to prevent left turns into and out of these pullouts. The barriers should be installed during the Exhibition on Friday before 10 AM and should be removed by Monday at 4 PM. This measure would apply to approximately six pullouts.

Infrastructure Improvements

The existing one-lane Harvey Bridge at Parkdale is inadequate for the level of traffic expected to utilize the Parkdale visitor information site under Alternatives 1a, 1c, 1d, 2 and 3. Therefore, a temporary one-lane bridge would need to be constructed to provide capacity for one lane in each direction. This is required to accommodate the volume of visitor traffic expected into and out of a new parking lot at this location.

With Alternatives 1c, 1d, 2 and 3, a 350-foot right turn acceleration lane and a 350-foot right turn deceleration lane along US 50 at the Harvey bridge intersection would be provided along with temporary lane striping and/or delineation with standard traffic devices and appropriate signs. This can be seen in Figure 5. These auxiliary lanes are needed due to the estimated amount of visitors wanting to access the Parkdale parking lot while not exceeding allowable delay requirements on US.

A new, legal, CDOT approved, signed and flagger controlled u-turn opportunity should be provided within one mile of the Texas Creek parking lot entry. This can be seen in Figure 6. The facility would be located in a three lane section, with the center lane being used as a left turn lane. Vehicles seeking a legal u-turn would enter the center lane and turn left across eastbound traffic into a turnaround area. A flagger would manage queues in the left turn lane and any resulting queues for eastbound motorist necessary to shorten the stacking distance in the center/left turn lane. This u-turn opportunity would be designed to reduce illegal u-turns on residential streets, other roads, and pullouts immediately west of Texas Creek. This measure, in conjunction with VMS, would provide motorists an opportunity to make u-turns after driving past the Texas Creek panels, and especially if the Texas Creek parking area entry is closed.

Figure 5. Parkdale Auxiliary Lane Concept Design, MP 266

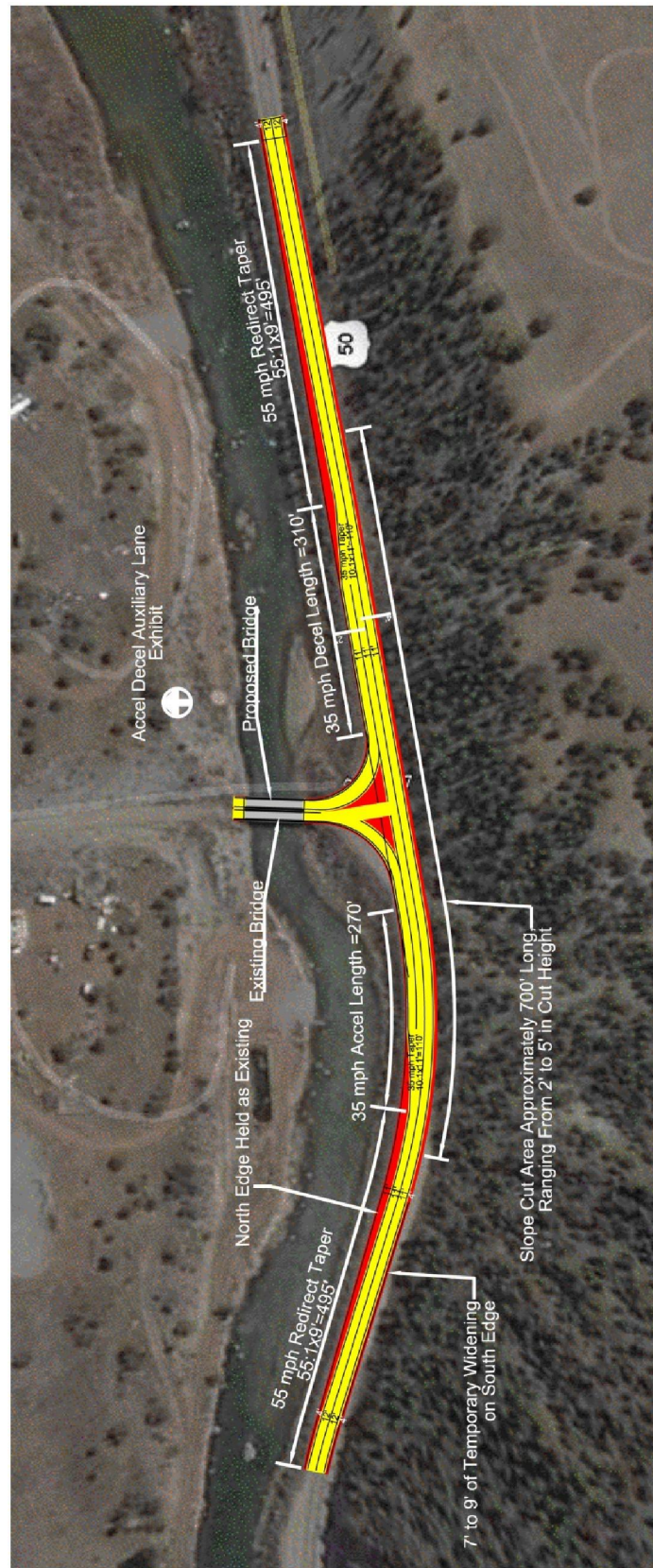
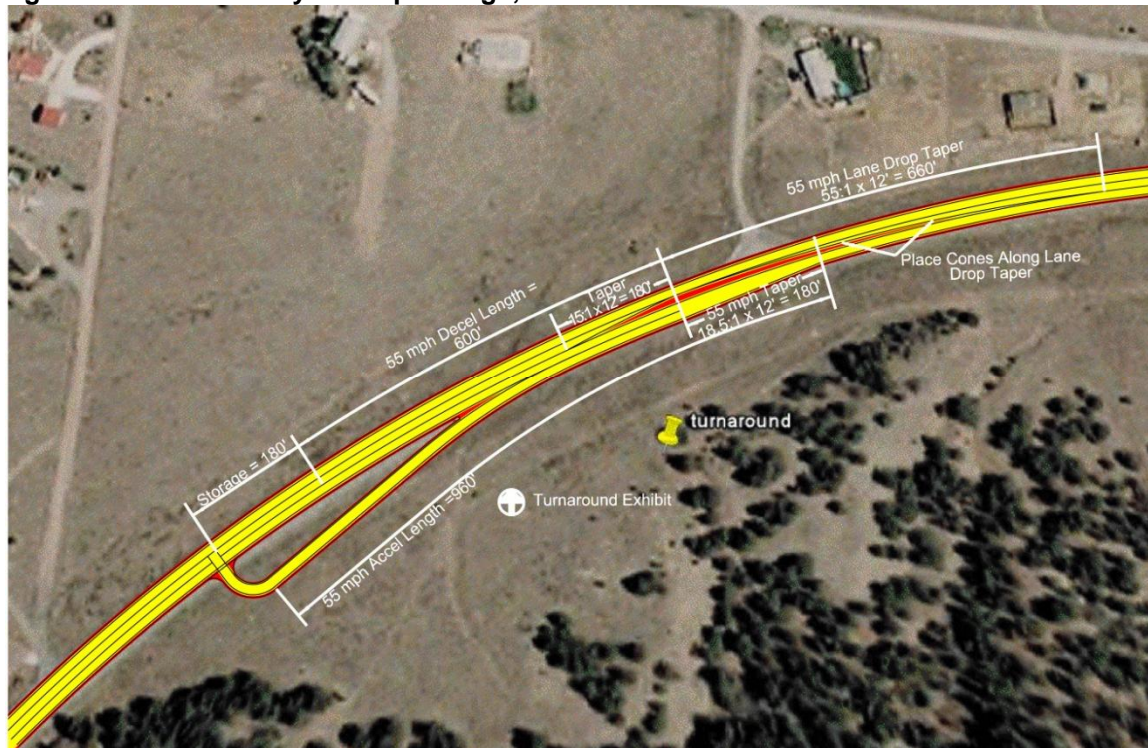


Figure 6. U-Turn Facility Concept Design, MP 251-252

Uniformed traffic controllers would be used along US 50 to prevent vehicles from stopping in inappropriate locations, to manage speeds in panel viewing areas (maximums and minimums), and to provide guidance for traffic during an incident such as a stalled vehicle.

Traffic control devices would be used at fabric panel locations along US 50 for various purposes, including: to prevent head-on crashes, u-turns, eastbound motorists from turning left, and pedestrian crossings at fabric panel locations.

Parking

A 900-space public parking lot and related access roads would be constructed on the north side of the Arkansas River on the upstream side of the Harvey Bridge. Visitors would be allowed to park in the lot for up to 30 minutes. If or when the parking lot becomes full, the entrance to the parking lot at US 50 would be closed until 25% of the 900 spaces (225 spaces) become available. At this time, the entrance would be reopened. Drivers wanting to enter the parking lot during the closure would be required to bypass the entrance and continue driving along US 50. No other public parking would be constructed or allowed in the area. On site signing, parking lot management staff, and variable message signs would be used to inform motorists of parking lot closures.

Viewing immediately prior to, during, and after sunrise and sunset is expected to be popular with visitors due to lighting conditions. For the purposes of analysis, sunrise and sunset are expected to occur at approximately 6am and 8pm, respectively. To meet this demand, the Parkdale Viewing Center parking lot would be open from 5am-9pm daily during the exhibition period.

A 40-space parking lot would be constructed on the north side of the Arkansas River at Texas Creek. Visitor vehicles would be allowed to park in the lot for up to 30 minutes. No other public parking would be constructed or allowed in the area. If and when the parking lot becomes full, the entrance to the parking lot at US 50 would be closed until 25% of the 40 spaces (10 spaces) are available. At this time, the entrance would be reopened. Drivers wanting to enter the parking lot during the closure would be required to bypass the entrance and continue driving along US 50.

CR-45

CR 45 generally parallels the Arkansas River and US 50 on the north side of the river between Vallie and the east end of the railroad tunnel, located approximately 8 miles upriver of the town of Howard. At Vallie, CR 45 intersects US 50 and crosses the Arkansas River. Bridge crossings are available at Vallie Bridge, Cherry Creek Road Bridge, and Howard Creek Bridge. Near Wellsville, CR 45 turns into a four wheel drive road that is impassable at certain water levels and dangerous for inexperienced drivers.

In the Vallie Bridge area, additional monitors would be stationed along CR 45 and the river to prohibit visitors from trespassing to view the fabric panels. Additionally, a law enforcement officer would be located along CR 45 in this area to reinforce the trespass rules.

Law enforcement personnel would be located in an informal pullout in the Tunnels area. Additional signs would be placed at either end of the four-wheel drive portion to warn drivers of the hazards.

Visitor Services, Emergency Services and Response

Towing and vehicle assistance personnel would be staged at several locations in the corridor during the week prior to the exhibition period and for the duration of the exhibition period. Towing services would be available at the Parkdale boat launch (downstream of the Parkdale Viewing Center), Five Points recreation site, Texas Creek, Vallie Bridge Limited Rest Stops and at the west and east end of the project corridor. Towing services would be available from 8am-8pm daily, and would be responsible for removing disabled vehicles from traffic, providing minor assistance to visitors (e.g., gasoline, jumper cables), and removing vehicles parked in violation of the event rules and regulations. Towed vehicles would be taken to the Parkdale Viewing Center, Texas Creek Limited Rest Stop, or Salida, depending on where they were initially retrieved. Temporary secure storage areas would be provided at each of these locations. An inventory of towed vehicles would be maintained at the Texas Creek Command Post.

First aid stations would be located at each of the limited rest stops, including Vallie Bridge Limited Rest Stop, and at the west and east end of the project corridor. These stations would be staffed by trained paramedics between 8am-6pm during the two-week exhibition period, and would be intended for minor, non-life threatening injuries.

Normal levels of emergency services staffing would be maintained for the BLM, Colorado State Parks, CSP, Fremont County Sheriff Department, and Chaffee County Sheriff Department. In

addition, supplementary staff and vehicle resources and emergency services would be temporarily located in the corridor during the exhibition phase.

An ambulance and paramedics would be staged at the Parkdale Viewing Center and Texas Creek Limited Rest Stop during the week prior to and during the exhibition phase. The ambulance would be on site every day from sunrise to sunset.

A medical helicopter would be staged at the Texas Creek Command Post during the week prior to the exhibition phase and during the exhibition phase. The helicopter would be on site from sunrise to sunset during those days. The helicopter would ensure that a medical transportation option with quick response times would be available even if US 50 became congested. There are no designated landing areas in the corridor, but locations that meet an emergency helicopter's operational requirements include Five Points recreation site and the communities of Coaldale, Howard, Texas Creek, and Cotopaxi. Depending on the incident location and prevailing conditions, the helicopter would either stay at the staging area awaiting ground transport of the patient to the helicopter, or travel to a landing site agreed upon by the Command Post, on-site incident commander, and the pilot.

A total of 21 law enforcement or security vehicles and personnel would be staged in existing informal pullouts in each fabric panel area and at Parkdale, Five Points, Salt Lick, Pinnacle Rock, Texas Creek, Lone Pine and at the west and east end of the project corridor. Law enforcement personnel would be in position at the panel areas during the exhibition period from 8am-6pm. Officers located at Parkdale, Five Points, Salt Lick, Pinnacle Rock, and Lone Pine recreation sites would ensure that private and commercial rafting operations continue unimpeded and that visitors are following the corridor rules and regulations, including no visitor stopping or parking within 0.5 mile of any fabric panel. There would also be law enforcement or security personnel at the Command Post during the week prior to the exhibition phase and during the exhibition phase. These resources are expected to be obtained from local law enforcement, other law enforcement agencies approved by local agencies, or private security contractors.

Law enforcement, security, emergency responders, and tow trucks would be active and staged in selected areas to keep traffic moving.

Fire suppression equipment would be staged at Texas Creek during the exhibition period. If necessary, OTR Corp would provide supplementary communications equipment to local fire protection agencies. Smaller caches of firefighting equipment and supplies would be located at the Parkdale Viewing Center, the Vallie Bridge Limited Rest Stop and at the west and east end of the project corridor. Other fire fighting resources, such as air tankers, would be provided if determined necessary by local fire commanders.

Hazardous material spill containment, mitigation, and cleanup equipment would be staged at the Texas Creek equipment lay down area. Staff trained in hazardous materials containment and mitigation would be located at Texas Creek to act as first responders in the event of a hazardous material spill.

Suspicious criminal or terrorist activity would be immediately reported to the Command Post. All criminal acts, including trespass, occurring during the event would be prosecuted to the fullest extent of the law.

There is currently no corridor evacuation plan in place for the project corridor. Prior to the event, an evacuation plan and Incident Management Plan would be developed in coordination with Cooperating Agencies and local emergency management staff. It is anticipated that visitors located near the east and west ends of the exhibit would be evacuated to the towns of Salida and Cañon City, respectively. In the central portion of the canyon, SH 69 leads south out of Texas Creek and could be used to evacuate visitors to Westcliffe, Colorado. The Incident Management Plan would establish protocol and steps to be taken under specifically defined conditions for the Preferred Alternative.

In addition to night security operations, rail cars would be used to transport monitors to and from assigned duty stations. Rail mounted trucks may also be used to deliver water, food, and portosans to monitors assigned to duty stations on the railroad side of the river.

4.1.3 Demobilization

General

Removal of the physical features of the work of art would commence immediately after the exhibition period and would be completed within approximately three months, weather permitting.

Communications

The Demobilization teams would have DTRs capable of communicating directly with emergency service providers and the Command Post. Emergency communication protocols during the first week of the removal phase would be the same as defined for the exhibition period.

Staffing and Workforce

The Texas Creek Command Post would be fully staffed during the first week following the exhibition phase. All Demobilization activities would be coordinated from this Command Post. The Command Post would continue to handle emergency communications during this time.

Traffic Management

Traffic management during the removal phase would consist of normal construction activity traffic management techniques and equipment. Normal traffic control activities and devices, as defined in the MUTCD and CDOT's Standard for Traffic Control Plans (shown in their M & S Standards), would be utilized to facilitate closures or to notify travelers of removal activities in the corridor.

CDOT lane closure policies will be followed. All methods of handling traffic and speed reductions will be submitted to CDOT for review and approval prior to beginning any work. CDOT will typically need at least two weeks to review submittals prior to commencing work.

Any requisite lane closures on westbound US 50 for construction would be limited to one lane for up to 400 feet per activity location, and would not occur at intervals less than 10 miles apart. Lane closures would be accomplished through a combination of techniques, including flagging, pilot cars, and barricades, as appropriate. It is estimated that lane closures would occur on 24 days over the three-month removal period.

Non-local contractor staff would be housed in local communities and would be expected to carpool to the work sites. Contractor parking and staging would be concentrated at the central staging area; however, a small amount of vehicle parking may be required at various locations throughout the corridor as the work progresses. On the highway side, this parking would utilize existing informal pullouts where parking is allowed as much as possible. Where not possible, work vehicles would be located within the 400-foot work/closure zone and protected in accordance with the MUTCD and CDOT M & S Standards.

For the duration of the removal period, VMS would be located near Parkdale and Texas Creek for westbound traffic and near Salida and Texas Creek for eastbound traffic. The signs would inform all US 50 travelers of daily de-construct activities, their location, and expectations of delays, if any. In addition, daily activity summaries would be provided to local media for broadcast as part of their community information services.

Access

Local residential access would be maintained at all times during the removal phase.

Some informal parking pullouts used for recreation access could be closed for short periods (1-2 days) during the anchor removal and restoration activities. Due to the 400-foot maximum lane closure stipulation and the separation of installation activity areas by at least 10 miles, it is anticipated that no more than one pullout would be closed at any given time.

Recreational access to the river will be largely unimpeded; however, there may be short periods of time where a parking pullout used for recreation access is in a Demobilization area, and therefore not available. These discreet locations would be unavailable to the public for an estimated day or two during Demobilization activities.

Security

OTR Corp would employ private security to patrol the panel areas until all hardware is removed and the staging and lay down areas until the Demobilization phase is complete. Equipment and materials stored in the staging and lay down area would be located inside a secure area to prevent theft and vandalism. A private security team would provide additional "eyes on" the corridor during the Demobilization phase in the event of suspicious activity, accident, emergency, fire, etc., and would be able to report this activity immediately to local law enforcement and emergency service providers.

4.2 US 50 VISSIM Traffic Analysis Model

VISSIM software was used for comparative analysis of alternatives for the transportation network in the Project Area. The limits of the modeled area include from Fremont Road on the east to the end of the panel installation on the west.

VISSIM is a microsimulation modeling software that has several advantages to traditional modeling software that are advantageous given the uniqueness of the Project. VISSIM can model the entire day, specific routing of vehicles, and variable constraints such as dwell time in parking lots. However, the biggest advantage of the VISSIM software is the ability to report unique and relevant performance measures. Traditional performance measures, such as Level of Service, are less applicable to special events generating unique and temporary travel demands. The VISSIM analysis and results were supplemented with selected use of Highway Capacity Manual (HCM) analysis modeling to develop LOS estimates at key US 50 intersections.

The following discussions in Chapter 4 demonstrate how the VISSIM modeling inputs were developed based on visitation estimates and associated assumptions.

4.3 Estimated Visitation and Traffic for the Project Alternatives

Estimated traffic volumes for the Project Alternatives were derived by Harvey Economics' *Visitation Projections for Over The River* and various estimates, assumptions and refinements. The primary findings from the visitation analysis are presented in Table 13 and 14.

Table 13. Visitation Estimates for All Alternatives, Phases and the Peak Day (Persons)

Alternative	Visitors During Exhibition Phase	Installation Phase	Demobilization Phase	Exhibition Peak Day
1a, Artists' Proposed Action	344,000	36,000	36,000	34,400
1c	439,000	46,000	46,000	34,400
1d	224,000	23,000	23,000	25,845
2	361,000	38,000	38,000	36,100
3	320,000	33,000	33,000	32,000
4	145,000	15,000	15,000	14,500

Source: Harvey Economics' *Visitation Projections for Over The River*

Table 14. Visitation Estimates for All Alternatives for Exhibition Phase Weekdays (Persons)

Alternative	Exhibition Phase Monday and Friday	Exhibition Phase Tuesday Through Thursday
1a, Artists' Proposed Action	25,800	17,200
1c	25,800	17,200
1d	17,230	8,615
2	27,075	18,050
3	24,000	16,000
4	10,875	7,250

Source: Harvey Economics' *Visitation Projections for Over The River*

The following discussions clarify how the visitation estimates were refined and converted to traffic estimates for each phase of each Alternative. Appendix C contains the primary calculations for the conversion of visitation estimates to traffic estimates, and primary traffic modeling calculations.

4.3.1 Estimated Visitation and Traffic for Alternative 1a

Exhibition Phase for 1a

The following discussions break down overall visitation estimates for Alternative 1a according to the following set of assumptions:

- Days of the Week
- Travel Routes
- Mode Split
- Peak Day Travel by Time of Day

Additional assumptions are provided for parking lot management.

The subsection concludes with a summary table providing estimates of visitation and vehicle volumes based on the applicable assumptions.

Daily Visitation Distribution Assumptions

For this analysis, it is assumed that a weekend day (Saturday and Sunday) would attract twice as many Exhibition Phase visitors to the project than Tuesday through Thursday and that visitation on Monday and Friday would be 1.5 times the amount of visitors than on Tuesday through Thursday.

Travel Routing Assumptions

The visitation analysis done by Harvey Economics presented in the document *Visitation Projections for Over The River, 2009* shows 75% of the visitation traffic would travel along US 50 via I-25 and SH 115, 9% would travel on US 50 west of Salida, 8% would travel from the north on US 285, 5% would travel on SH 9, 3% would travel from the south on US 285, and less than 1% would travel from the south on SH 69. Visitors arriving from I-25/SH 115 and SH 9 sum to 80% of the visitation traffic in the Project Area. Visitors arriving from US 285, US 50 west, and SH 69 would sum to 20% of the visitation traffic in the Project Area. This set of assumptions is consistent with *The Over The River Project Traffic Operation Analysis* report prepared by David Evans and Associates, Inc. (June 2006).

Specific routing was programmed into the VISSIM model after examining visitor travel patterns in more detail. Figures 5 and 6 clarify assumptions associated with where visitors would be coming from and what routes visitors would take once they arrive in the vicinity of the art for Alternative 1a.

Figure 7. Eastbound Trip Routing Assumptions for Alternative 1a

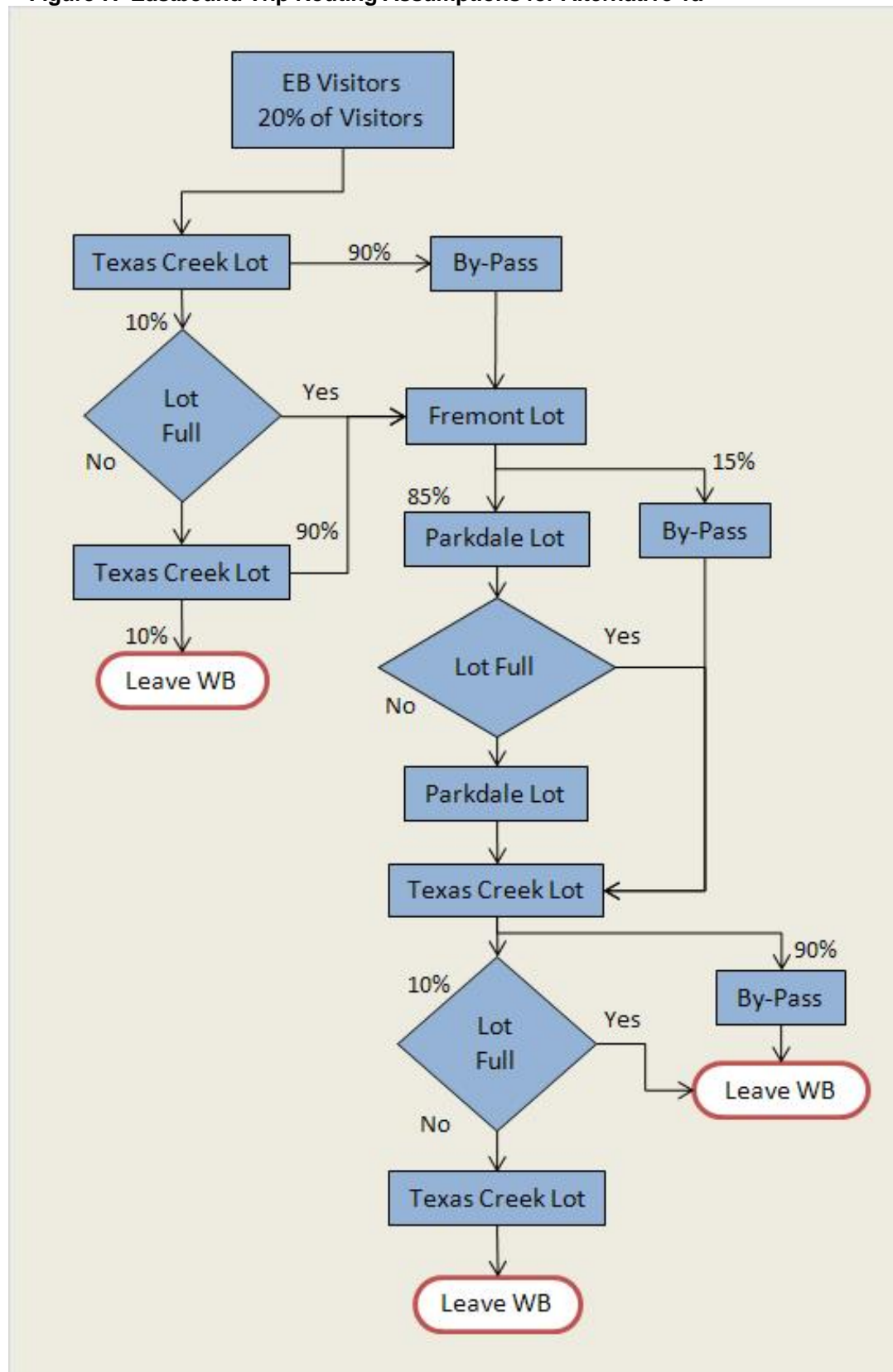
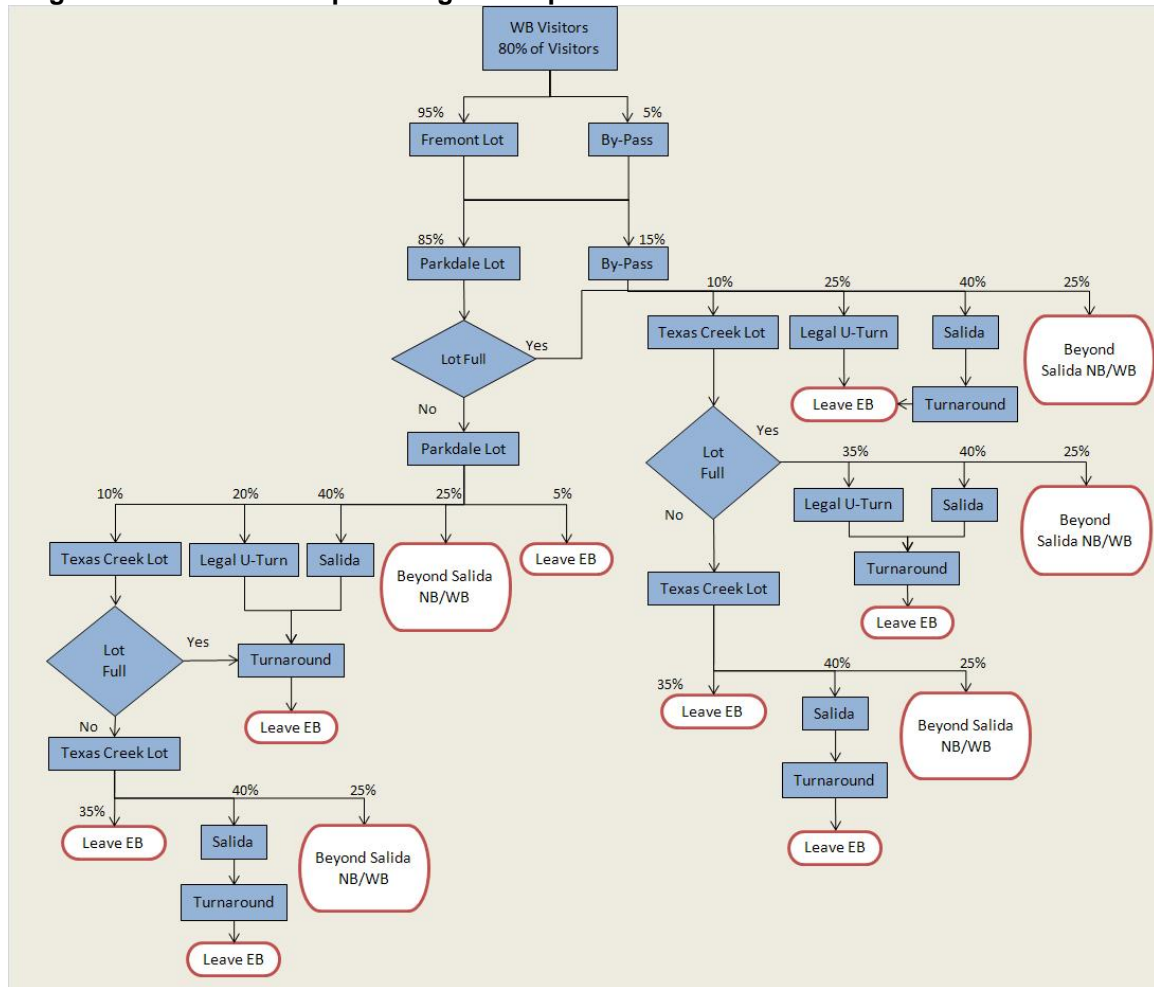


Figure 8. Westbound Trip Routing Assumptions for Alternative 1a

Visitor Mode Split

It is inherent to assume that not all visitors to the Project would arrive in separate vehicles. For this analysis it was assumed that visitors would arrive to the Project Area by personal vehicles, private van/shuttle bus, or private full size bus. Based on trip origins from the visitation estimations, occupancy rate assumptions for each vehicle type were derived. These assumptions were based on reviewing the in-state and out-of-state visitation forecasts. For in-state visitors, it was assumed that occupancy rates would be higher the further away from the project area. This means that more groups of people would organize van groups or carpooling the further the distance to travel to the project area. Out-of-state visitors are also assumed to be more inclined to travel with higher occupancy rates including those that arrive to the state by air or train that would then arrive to the project area by private charter bus/van service from hotels or other regional transportation hubs.

Table 15 shows this information as well as the number of visitors and vehicles estimated to arrive by each mode of transportation for the Exhibition Phase of Alternative 1a.

Table 15. Visitor Mode Split Assumptions for Alternative 1a During the Exhibition Phase

Mode	Occupancy Range	Average Occupancy	Percent of Visitors	Number of Visitors	Number of Vehicles
Personal Vehicle	1-6	2.6*	83%	285,128	109,665
Private Van/ Shuttle Bus	6-15	9	12%	41,464	4,607
Private Full Size Bus	20-50	30	5%	17,408	580
TOTAL	-	-	100%	344,000	118,621

* Low end of the range of vehicle occupancy rates for special events and major summer attractions

These assumptions generate an overall average of approximately 2.9 visitors per vehicle.

These estimates were further validated by reviewing information provided by Ordonez and Vogelsang Consulting that reviewed several case studies of special events that would support an assumption of between 2.9 and 3.1 visitors per vehicle.

Peak Day Travel by Time of Day

Coaldale ATR data was reviewed for historical weekend day and weekday hourly traffic distributions. The historical weekend peak hour, which is the hour with the highest traffic over a 24-hour period, is from 12pm-1pm for the westbound travel direction. The local background traffic volume estimations loaded into the VISSIM model followed the same hourly curve as the Coaldale ATR data. It was determined that visitor traffic would follow a different hourly curve due to visitors wanting to view the art under different lighting conditions, such as sunrise and sunset. The end result is that a higher percentage of visitor traffic would be in the corridor in the early morning and late afternoon hours than historical background traffic.

Figure 9 shows the eastbound local background, visitor, and total traffic hourly distribution. Figure 10 shows similar information but for the westbound direction.

Figure 9. Eastbound Hourly Traffic Volumes for Alternative 1a

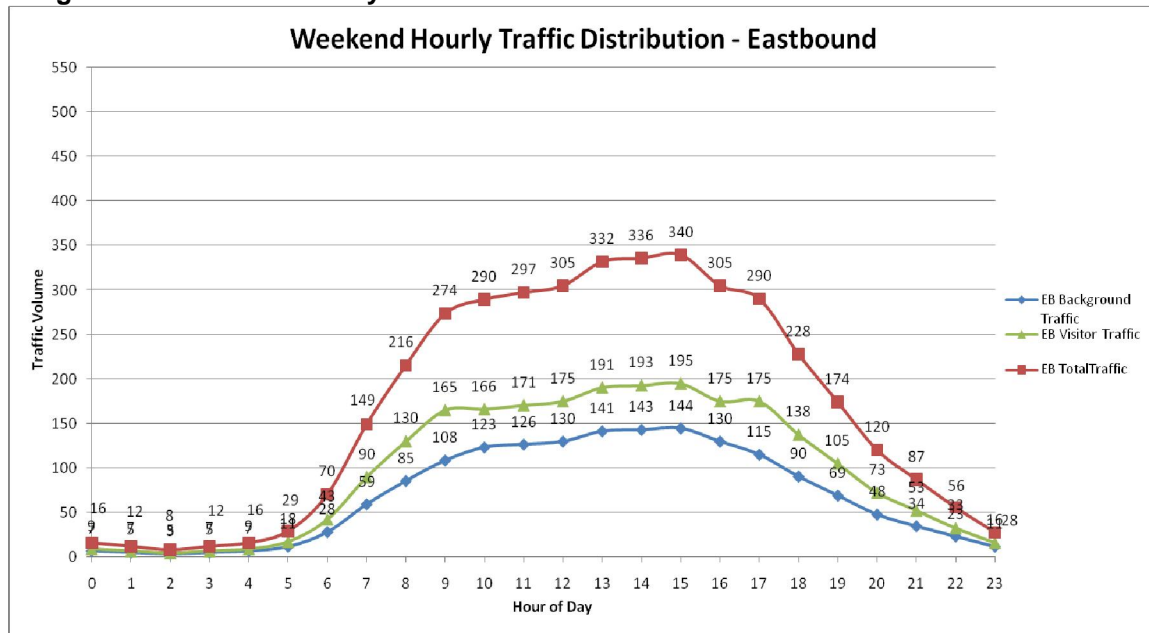
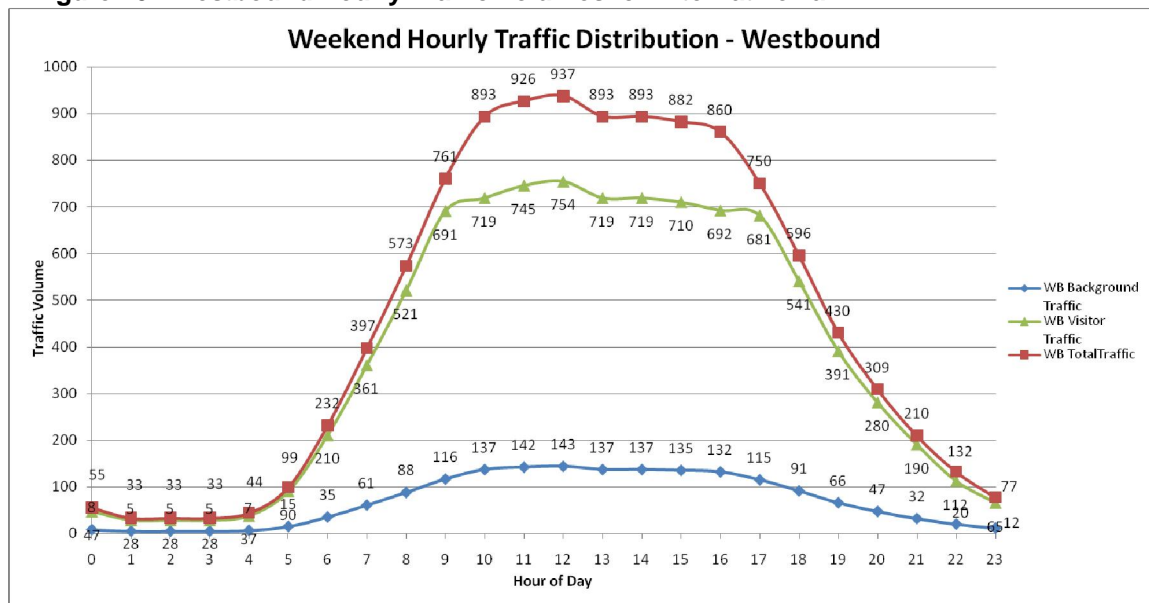


Figure 10. Westbound Hourly Traffic Volumes for Alternative 1a



Figures 7 and 8 demonstrate that the peak traffic would occur at mid-day, but the peak period would include several continuous peak hours from about 9:00 AM to about 5:00 PM. This set of peak period characteristics would be expected for all of the Build Alternatives with the estimated traffic volumes correlated to overall increases or decreases in peak day traffic volume estimates.

Parking Lot Management

The final set of assumptions for the model involves parking lot management. Parking lot management is a key component of creating a successful viewing experience and travel within the corridor. Some parking lot management variables considered include hours the parking lots are open, vehicle dwell times in the parking lots, and whether the parking lot intersection with US 50 would be operated by a uniformed traffic control officer or temporary signal.

To encourage traffic to spread more evenly during the day, and to accommodate the artists' encouragement of viewing the art at varying lighting conditions, the Parkdale parking lot is assumed to be open from 5:00 AM to 9:00 PM.

The parking lot intersection would most likely be controlled by a uniformed traffic control officer. However, the final method for intersection control would be up to the discretion of the appropriate cooperating agencies and could include use of temporary traffic signals.

The assumptions for parking lot dwell times are as follows:

- Parkdale Lot – dwell time ranging from 20 to 30 minutes
- Fremont Lot – dwell time ranging from 15 to 25 minutes

Installation Phase and Demobilization Phase for 1a

The following ideas were used to convert visitation during the Installation and Demobilization Phases into vehicle volumes:

- Visitation during the Installation and Demobilization Phases includes visitors interested in viewing the work leading up to and following the Exhibition.
- Project construction vehicles during the Installation and Demobilization Phases would be broadly distributed over time and inconsequential relative to visitor vehicles when visitor demand is expected to be high (one and two weeks prior to and after the Exhibition (Refer to the discussion below involving the distribution of visitor vehicles during the Installation and Demobilization Phases).
- Vehicle mode assumed for Installation and Demobilization Phase visitors would be different than the estimate for the Exhibition Phase. More specifically, the use of vans, shuttles and buses would be lower (See Table 16).

Table 16. Visitor Mode Split Assumptions for Installation and Demobilization Phases for Alternative 1a

Mode	Occupancy Range	Average Occupancy	Percent of Visitors	Number of Visitors	Number of Vehicles
Personal Vehicle	1-6	2.6	90%	32,400	12,462
Private Van/ Shuttle Bus	6-15	9	10%	3,600	400
Private Full Size Bus	20-50	30	0%	0	0
TOTAL	-	-	100%	36,000	12,862

Based on these assumptions, the overall average occupancy rate would be approximately 2.8 occupants per vehicle.

The following assumptions were applied to determine visitation rates throughout the Installation Phase and Demobilization Phase of the project.

Installation:

Timing	Percent of Total
1st Week Prior to Exhibition	50 %
2nd Week Prior to Exhibition	10 %
Earlier (over the course of a year or two years)	40%

Demobilization

Timing	Percent of Total
1 st week after Exhibition	40%
2nd week after Exhibition	35%
Later	25%

The resulting number of visitor vehicles would be 6,431 during the 1st week ahead of the Exhibition Phase. This weekly total would be approximately 10 percent of the vehicles anticipated during the peak week of the Exhibition Phase (61,755) or about 42 percent of the vehicles during the Exhibition Phase on a Tuesday, Wednesday or Thursday.

Outcome

Based on the applicable assumptions, visitation traffic totals for Alternative 1a are presented in Table 17.

Table 17. Traffic Totals for Alternative 1a

Timeframe	Visitors	Vehicle Totals
Installation Phase: Overall	36,000	12,862 vehicles 6,431 vehicles week prior 1,286 vehicles/peak day
Exhibition Phase: Overall	344,000	118,620
Exhibition Phase: Sat or Sun	34,400/day	11,862/day
Exhibition Phase: Fri or Mon	25,800/day	8,897/day
Exhibition Phase: Tu, Wed or Th	17,200/day	5,931/day
Demobilization Overall	36,000	12,862 vehicles 5,145 vehicles week prior 1,029 vehicles/peak day

Based on these estimates, the traffic analysis presented in Section 5 focuses on the Exhibition Phase's peak day travel to analyze worst case traffic effects.

4.3.2 Estimated Visitation and Traffic for Alternative 1c

Alternative 1c generates 101,000 more visitors than Alternative 1a because it includes an additional week during the Exhibition Phase. It is assumed that the extra week would generate peak period traffic volumes that would be the same or lower than those expected for Alternative 1a.

Estimation of Weekly Visitation Over Three Weeks

Overall week to week visitation with Alternative 1c could be consistent with the following possibilities or it could be somewhere in between:

Possibility 1 Same Pattern as Alternative 1a for the First Two Weeks:

First Week:	172,000
Second Week:	172,000
Third Week:	101,000
Total:	445,000

Possibility 2 Equally Distributed Visitation:

First Week:	149,000
Second Week:	148,000
Third Week:	148,000
Total:	445,000

Possibility 3	Unequally Distributed Visitation (More Visits Early)
First Week:	170,000
Second Week:	150,000
Third Week:	125,000
Total:	445,000

Possibility 4	Unequally Distributed Visitation (More Visits Late)
First Week:	125,000
Second Week:	150,000
Third Week:	170,000
Total:	445,000

Possibility 1 is considered the worst case situation. Weekly visitation would not be expected to be higher than with Alternative 1a (172,000) because the additional week would give visitors more weekend and weekday visit possibilities, thereby spreading the peak period. Possibility 1 is analyzed in Chapter 5 for Alternative 1a and the associated findings are the same for Alternative 1c.

Outcome

Based on the applicable assumptions, visitation traffic totals for Alternative 1c are presented in Table 18.

Table 18. Traffic Totals for Alternative 1c

Timeframe	Visitors	Vehicle Totals
Installation Phase: Overall	47,000	16,429
Exhibition Phase: Overall	445,000	151,379
Exhibition Phase: Peak Day- Sat or Sun	34,400/day	11,676/day
Exhibition Phase: Fri or Mon	25,800/day	8,897/day
Exhibition Phase: Tu, Wed or Th	17,200/day	5,931/day
Demobilization Overall	47,000	16,786

4.3.3 Estimated Visitation and Traffic for Alternative 1d

Alternative 1d is expected to generate 99,000 fewer visitors than Alternative 1a because the Exhibition would occur in September after the summer vacation season. As a result, weekends in September are likely to attract a far high proportion of visitors relative to weekdays than the same comparison during the summer vacation season. Consequently, it is important to know if those

weekends in September would have more visitors than weekends under Alternative 1a or not. The following analysis characterizes how assumptions were made to make this determination.

Estimation of Daily Visitation with a September Exhibition

Alternative 1d is expected to generate 245,000 visitors over a two week period involving two Saturdays and two Sundays. For this analysis, it is assumed that a weekend day (Saturday and Sunday) would attract three times as many visitors to the Project than a weekday and Monday and Friday are assumed to carry twice the amount of visitors than a weekday.

With two weeks, the peak visitation with Alternative 1d on one Saturday or one Sunday would be 28,269 or about 83% of the peak weekend day under Alternative 1a. This level of visitation is higher than Harvey Economics' estimate of 24,500. The higher estimate is used in the analysis of Alternative 1d.

Overall

Based on the applicable assumptions, visitation traffic totals for Alternative 1d are presented in Table 19.

Table 19. Traffic Totals for Alternative 1d

Timeframe	Visitors	Vehicle Totals
Installation Phase: Overall	26,000	9,286
Exhibition Phase: Overall	245,000	84,483
Exhibition Phase: Peak Day- Sat or Sun	28,269/day	9,748/day
Exhibition Phase: Fri or Mon	18,846/day	6,499/day
Exhibition Phase: Tu, Wed or Th	9,423/day	3,249/day
Demobilization Overall	26,000	9,286

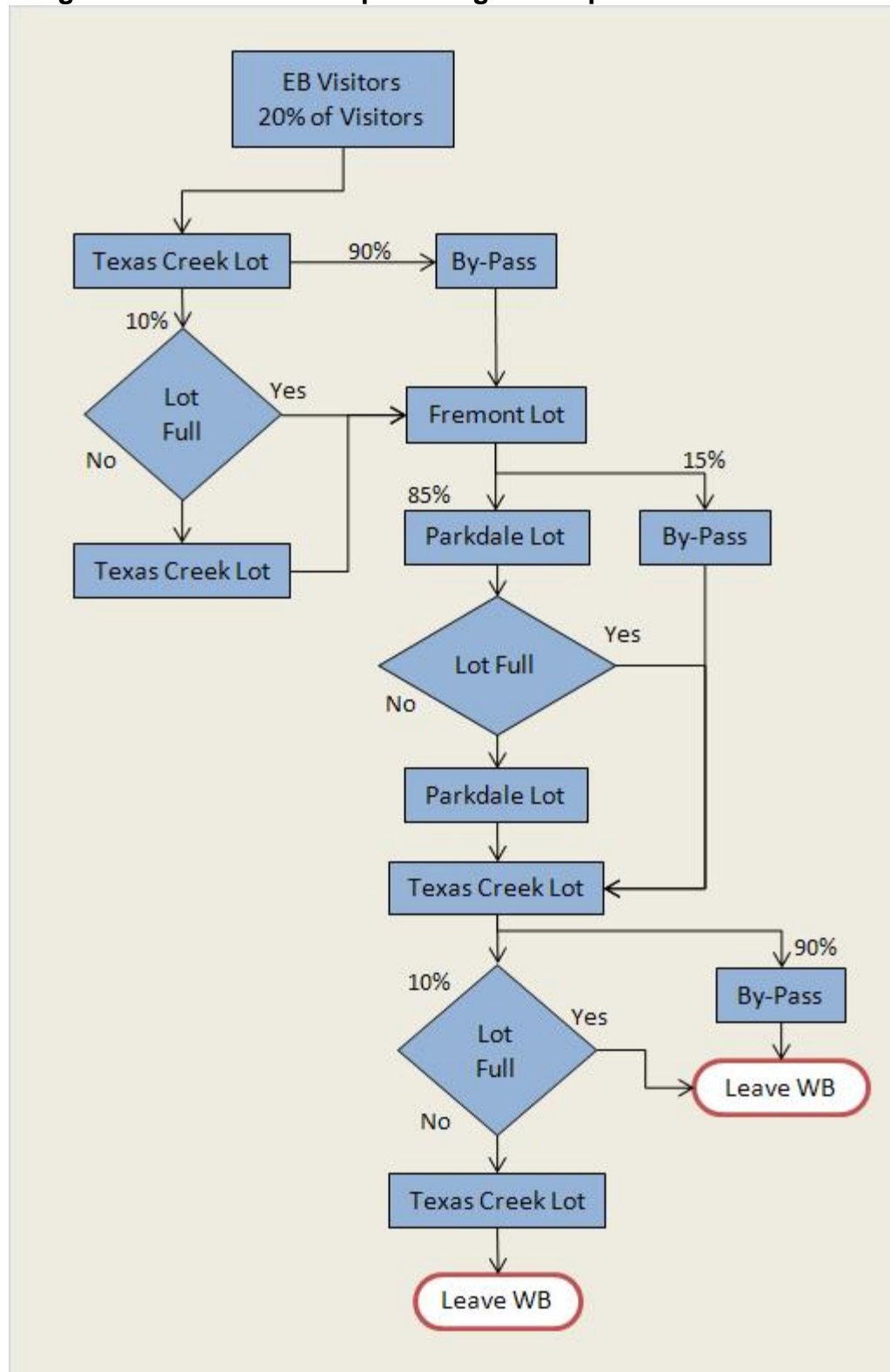
4.3.4 Estimated Visitation and Traffic for Alternative 2

Visitation for Alternative 2 would be identical to Alternative 1a with two exceptions:

1. The Exhibition Phase would occur in June or July which is expected to generate 17,000 more visitors than in August.
2. No panels are located beyond Texas Creek.

Routing Assumptions for Visitors Where There are No Panels West of Texas Creek

Figures 12 and 13 present the different routing assumptions for Alternative 2 based on panel locations. With Alternative 2, the entire exhibition can be viewed between Parkdale and Texas Creek. This situation is expected to substantially increase demand for u-turns in the Texas Creek area relative to Alternative 1a.

Figure 12. Eastbound Trip Routing Assumptions for Alternative 2

Overall

Based on the applicable assumptions, visitation traffic totals for Alternative 2 are presented in Table 20.

Table 20. Traffic Totals for Alternative 2

Timeframe	Visitors	Vehicle Totals
Installation Phase: Overall	38,000	13,571
Exhibition Phase: Overall	361,000	124,483
Exhibition Phase: Peak Day- Sat or Sun	36,100/day	12,448/day
Exhibition Phase: Fri or Mon	27,075/day	9,336/day
Exhibition Phase: Tu, Wed or Th	18,050/day	6,224/day
Demobilization Overall	38,000	13,571

4.3.5 Estimated Visitation and Traffic for Alternative 3

The reduction in panel miles is expected to reduce visitation for Alternative 3. However, the remaining panel locations are not expected to change travel assumptions set forth for Alternative 1a.

Based on the applicable assumptions, visitation traffic totals for Alternative 3 are presented in Table 21.

Table 21. Traffic Totals for Alternative 3

Timeframe	Visitors	Vehicle Totals
Installation Phase: Overall	33,000	11,786
Exhibition Phase: Overall	320,000	110,345
Exhibition Phase: Peak Day- Sat or Sun	32,000/day	11,034/day
Exhibition Phase: Fri or Mon	24,000/day	8,279/day
Exhibition Phase: Tu, Wed or Th	16,000/day	5,517/day
Demobilization Overall	33,000	11,786

4.3.6 Estimated Visitation and Traffic for Alternative 4

The assumptions for Alternative 1a would apply to Alternative 4 with two exceptions:

1. Fewer panel miles would substantially reduce visitation.
2. Visitors seeking to see more than one small panel area at Parkdale would need to travel well beyond Texas Creek to see a second panel site and almost all the way to Salida to see 80 to 100 percent of the panels.

Routing Assumptions for Visitors Where Panels are Spread Out

The panel locations change the travel routing assumptions for Alternative 4 relative to Alternative 1a because visitor u-turn demand at Texas Creek would be eliminated (See Figures 14 and 15).

Figure 14. Eastbound Trip Routing Assumptions for Alternative 4

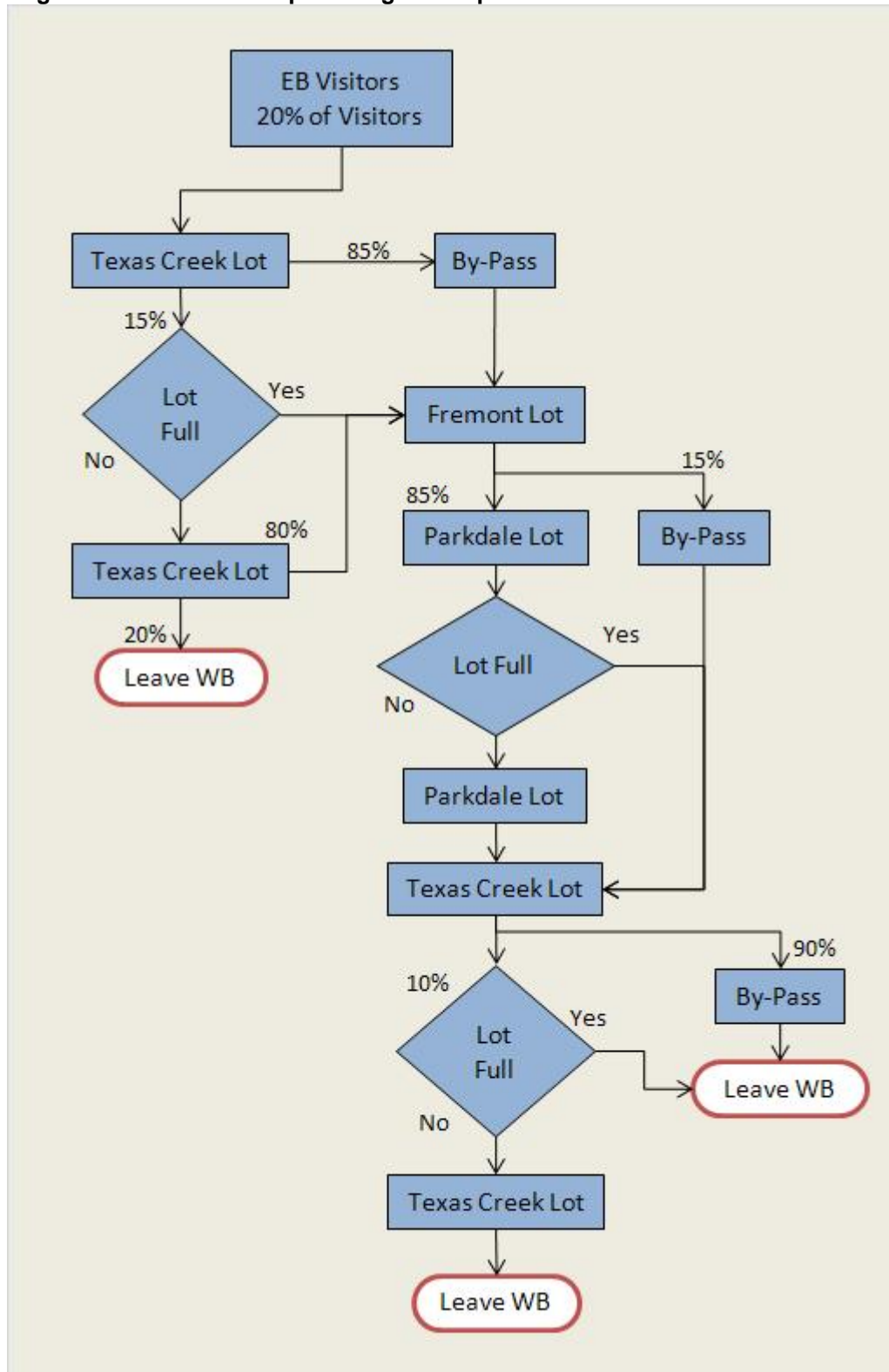
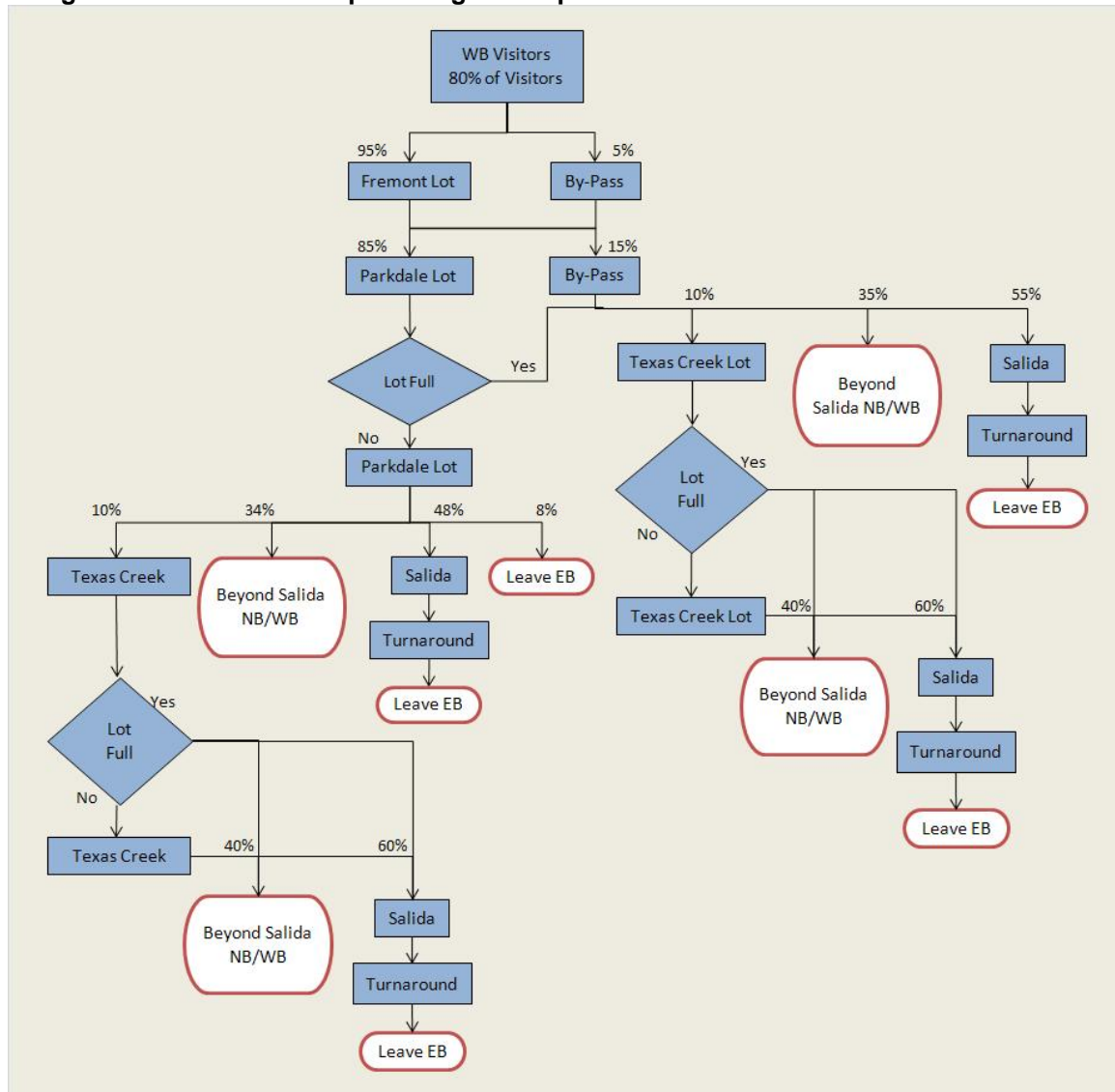


Figure 15. Westbound Trip Routing Assumptions for Alternative 4



Overall

Based on the applicable assumptions, visitation traffic totals for Alternative 4 are presented in Table 22.

Table 22. Traffic Totals for Alternative 4

Timeframe	Visitors	Vehicle Totals
Installation Phase: Overall	15,000	5,357
Exhibition Phase: Overall	145,000	50,000
Exhibition Phase: Peak Day- Sat or Sun	14,500/day	5,000/day
Exhibition Phase: Fri or Mon	10,875/day	3,750/day
Exhibition Phase: Tu, Wed or Th	7,250/day	2,500/day
Demobilization Overall	15,000	5,357

4.3.7 Estimated Visitation Summary

The visitation estimates for all alternatives are presented in Table 23.

Table 23. Visitation Estimates for All Alternatives (Persons)

Timeframe	1a	1c	1d	2	3	4
Installation Phase: Overall	36,000	47,000	26,000	38,000	33,000	15,000
Exhibition Phase: Overall	344,000	445,000	245,000	361,000	320,000	145,000
Exhibition Phase: Peak Day- Sat or Sun	34,000 /day	34,400 /day	28,269 /day	36,100 /day	32,000 /day	14,500 /day
Exhibition Phase: Fri or Mon	25,800 /day	25,800 /day	18,846 /day	27,075 /day	24,000 /day	10,875 /day
Exhibition Phase: Tu, Wed or Th	17,200 /day	17,200 /day	9,423 /day	18,050 /day	16,000 /day	7,250 /day
Demobilization Overall	36,000	47,000	26,000	38,000	33,000	15,000

Table 24 presents the resulting traffic totals estimated for Alternatives 1a through 4.

Table 24. Traffic Estimates for All Alternatives (incoming vehicles)

Timeframe	1a	1c	1d	2	3	4
Installation Phase: Overall	12,862	16,786	9,286	13,571	11,786	5,357
Exhibition Phase: Overall	116,758	151,038	83,156	122,528	108,612	49,215
Exhibition Phase: Peak Day- Sat or Sun	11,161 /Day	11,161 /Day	9,595 /Day	12,253 /Day	10,861 /Day	4,922 /Day
Exhibition Phase: Fri or Mon	8,757 /Day	8,757 /Day	6,397 /Day	9,190 /Day	8,146 /Day	3,691 /Day
Exhibition Phase: Tu, Wed or Th	5,838 /Day	5,838 /Day	3,198 /Day	6,126 /Day	5,431 /Day	2,461 /Day
Demobilization Overall	12,862	16,786	9,286	13,571	11,786	5,357

*Bus benefits are not shown in these figures. Bus benefits are shown in Section 5.

Appendix C contains the primary calculations for the conversion of visitation estimates to traffic estimates, and primary traffic modeling calculations.

5.0 TRANSPORTATION AND TRAFFIC EFFECTS ANALYSIS

5.1 No Action Alternative

The No Action Alternative would result in transportation and traffic conditions in 2013 that would be similar to those that occurred in recent years (See Chapter 3). Incremental annual increases in traffic associated with local, state and national growth would be expected to slightly increase vehicle volumes and slightly reduce levels of service relative to conditions in previous years. The anticipated incremental increase in vehicle volumes would be expected to generate minimal effects on congestion, safety, access and mobility throughout the year.

Expected travel times in 2013 are as follows:

- Westbound US 50 from Fremont Rd to County Line Section 55.4 Minutes
- Eastbound US 50 from County Line Section to Fremont Rd 54.5 Minutes

5.2 Alternative 1a

5.2.1 Installation Phase

Effects on the Regional Transportation Network

The Installation Phase of Alternative 1a would not include substantial improvements to the regional roadway network nor would it create functional limitations on the system. Few, if any travel diversions would be anticipated.

During the school year, school buses could experience minor, short-duration, and temporary delays as a result of slow moving vehicles and occasional temporary lane closures. No school bus stops or access points would be closed or blocked.

Freight rail tracks on the north side of US 50 between Salida and Parkdale would be used for project related freight hauling. However, no changes or interruptions of service to the Royal Gorge passenger rail service would be anticipated. No conflicts with other freight hauling operations on these tracks are anticipated.

No airport or airspace effects would be expected to occur during the installation phase of the project. Curiosity flights would not be expected or would be quite limited because the cables and their associated foundations would not be easy to see from an aircraft flying over the corridor.

Effects on Project Area Traffic Operations and Performance

The Alternative 1a Installation Phase is expected to occur over a period of approximately two years (28 months). No installation activity would occur on the US 50 side of the river in the busier months of June, July and August. An estimated 36,000 visitors are expected to see the corridor during the Installation Phase. Installation Phase traffic operations and performance outcomes would be the result of visitor traffic, construction traffic and construction obstructions.

Visitor traffic during the Installation Phase would generate 12,862 vehicles over the two year period in the project corridor with 6,431 vehicles during the peak week and 1,286 vehicles on the busiest day (Saturday or Sunday). This visitor travel added to US 50 in late July or the very beginning of August would occur when construction is near completion and relatively low levels of construction traffic would be added. This incremental increase in traffic would add temporary and minor travel time delay and congestion to normal July conditions. At all other times (non-peak periods), Installation Phase visitor traffic would create no measurable operation or performance effects.

Construction traffic volumes would be low relative to anticipated visitation volumes. Construction traffic on US 50 would not be significant in June, July, and August and lane closures would not occur during this period. . During this timeframe, construction would be focused on the north side of the river using the railroad for access. Consequently, construction traffic volumes would have no measurable effects on operations or performance during the summer months.

During non-summer months, installation phase construction obstructions would result from slow moving trucks and occasional lane closures over a period of approximately two years. Slow moving trucks would create short-duration minor effects and delay. Lane closures would create short-duration minor delays in various locations distributed geographically and over time. Multiple lane closures would be separated by a minimum distance of 10 miles. Some informal pull-offs would be closed when installation activities require parking large vehicles in these areas taking up all of the available parking for visitors. Multiple pull off closures on the same day would not be expected.

Effects on Traffic Safety

The potential effects on traffic safety include slightly higher than normal levels of traffic and the presence of additional driver distractions. These effects would be offset to some extent by slightly slower travel speeds throughout the corridor. A wide range of measures common to all alternatives are proposed to address Installation Phase influences on traffic safety. With all of the proposed Installation Phase commitments such as work zone traffic control, the risk of increased vehicle crashes would be minor and short-term.

Effects on Mobility and Access

Potential effects on mobility and access during the Installation Phase would be minimal and temporary. A slight decrease in mobility associated with lane closure and slow moving construction and hauling vehicles would be expected, but not during the busy summer periods. Interstate and intrastate travelers would not be expected to take alternate routes as a result of associated delays.

No existing public or private roads or driveways would be blocked during the Installation Phase. Short duration disruptions could occur in some locations on occasion as construction vehicles maneuver through the corridor and take their positions in specific installation areas. With all of the proposed Installation Phase commitments, the effects on mobility and access would be minor and short-term.

5.2.2 Exhibition Phase

Effects on Project Area Traffic Operations and Performance

Exhibition Phase effects on key intersections are presented in Table 25. These results were based on the *Highway Capacity Manual* (HCM) using *Highway Capacity Software* (HCS) for unsignalized two-way stop-controlled intersections. Two conditions for intersection operations are shown:

1. Current Unsignalized Condition
2. Anticipated Temporary Flagger Controlled Condition

The LOS results indicate that intersections in the project area would be congested and normal performance standards would not be met during the peak periods on the peak days (Saturday and Sunday from about 10:00 AM to 4:00 PM). However, the intersection LOS measure for traffic performance is most frequently applied to normal peak period conditions rather than temporary conditions or special events. Therefore, other measures were developed for evaluation of Exhibition Phase traffic conditions and significance findings.

The VISSIM model was used to produce additional measures of traffic performance. The VISSIM modeling results for Alternative 1a and all of the other alternatives are presented in Table 26. The effects for Alternative 1a presented in Tables 25 and 26 are described in the following discussions along with the overall accumulated Exhibition Phase delays during the peak period of the peak day. In summary, these effects would be considered short-term, but significant requiring the proposed set of event management measures, additional mitigation, and measures tailored to actual conditions during the event. During non-peak times, the temporary delays would be considered minor to moderate short-term effects.

Table 25. Weekend Peak Hour Level of Service at Major Intersections

Intersection	Approach	No Build	Alternative 1a		Alternative 1c		Alternative 1d	
		HCM LOS	HCM LOS - U	HCM LOS - M	HCM LOS - U	HCM LOS - M	HCM LOS - U	HCM LOS - M
US 50 at SB US 285	SB Left	C	F	C	F	C	F	C
US 50 at NB US 285	WB Left	D	F	D	F	D	F	D
US 50 at CR 1A	NB	B	F	D	F	D	F	D
US 50 at SH 69	NB	B	F	D	F	D	D	D
US 50 at CR 3	NB	A	C	-	C	-	B	-
US 50 at SH 9	SB Left	B	F	D	F	D	F	D
US 50 at CR 3A	NB Left	F	F	D	F	D	F	D
US 50 EB at SH 115	EB Left	C	F	B	F	B	E	B
US 50 WB at SH 115	WB Left	C	E	D	E	D	D	D

U = Unsignalized

M = Mitigated

Table 25 (cont.)

Intersection	Approach	Alternative 2		Alternative 3		Alternative 4	
		HCM LOS - U	HCM LOS - M	HCM LOS - U	HCM LOS - M	HCM LOS - U	HCM LOS - M
US 50 at SB US 285	SB Left	F	C	F	C	F	B
US 50 at NB US 285	WB Left	F	D	F	D	F	D
US 50 at CR 1A	NB	F	D	F	D	E	D
US 50 at SH 69	NB	F	D	E	D	C	D
US 50 at CR 3	NB	D	-	C	-	B	-
US 50 at SH 9	SB Left	F	D	F	D	E	D
US 50 at CR 3A	NB Left	F	D	F	D	F	D
US 50 EB at SH 115	EB Left	F	B	E	B	D	B
US 50 WB at SH 115	WB Left	E	D	E	D	D	D

U = Unsignalized

M = Mitigated

Table 26. Peak Day Exhibition Phase Performance Results for all Alternatives

Performance Measure	No Build	Alt 1a	Alt 1c**	Alt 1d**	Alt 2**	Alt 3**	Alt 4**
Maximum Travel Time* (Minutes)							
WB 50	55.4	81.6	72.0	71.1	72.0	72.8	65.6
EB 50	54.5	66.9	66.7	65.4	65.6	65.7	62.0
Maximum Delay Exiting Parking Lots (Minutes)							
Fremont Rd	NA	3.7	3.7	3.7	3.7	3.8	2.9
Parkdale	NA	55.1	7.3	6.1	8.0	6.9	5.9
Texas Creek	NA	4.7	3.2	3.1	3.5	3.0	3.3
95 th Percentile Queues Lengths @ Parking Lot Intersections (Feet)							
Fremont Rd							
WBRT	NA	25	25	25	25	25	25
EBLT		100	100	50	125	75	125
Parkdale							
EB	NA	1275	1075	225	1375	600	25
WB		9350	150	25	175	100	25
Texas Creek							
WB	NA	200	175	25	175	100	25
EBLT		25	25	25	25	25	25
EB		25	25	25	50	25	25
Maximum Vehicles Parked in the Parking Lots							
Parkdale (900 spaces)	NA	894	705	511	756	739	289
Texas Creek (35 spaces)	NA	35	31	23	42	31	16

Travel Time Delay: US 50 Local Traffic (East/West Travel). Various factors will increase U.S. 50 travel times during the exhibition. The primary factor to evaluate is the increased vehicle volumes during the exhibition relative to the capacity of U.S. 50. There are a wide range of incident possibilities which could add to the delay associated with increased vehicle volumes.

Estimated traffic volumes for Alternative 1a and the other alternatives were run through the VISSIM model under the conditions set forth in Chapter 2 for managing Exhibition Phase traffic. Under these conditions, , the estimated peak period westbound and eastbound travel time delays for local through traffic traveling from Fremont Road (CR 3A) on the east to the County Line Panel Section on the west were calculated. With Alternative 1a the delay is estimated to be approximately 26 minutes in the westbound direction and 12 minutes in the eastbound direction relative to 2013 No Action conditions. These delays are generally caused by:

- Lower overall average speeds throughout the corridor
- Occasional stops for through traffic at primary intersections
- Slower speeds in panel viewing areas

Less delay would be experienced on nonpeak days and during nonpeak periods.

Additional delay, not accounted for in the VISSIM model, would or could be caused by:

- Travel conditions beyond the project/modeling limits
- Accidents and associated emergency response requirements
- Natural phenomena (landslide, falling rocks, rain, hail, etc)
- Motorists driving far lower than assumed speeds near panel sites or elsewhere (VISSIM model assumed 25 mph speed through panel sites)
- Reduced travel speed by out of state visitors who are not familiar/comfortable with the roadway geometry and terrain.

The following discussions provide additional information about these sources of additional delay.

Travel Time Delay: US 50 Background Traffic (Left Turns and U-Turns at Intersections)

Motorists using north/south roads and driveways that intersect US 50 would be subject to delays during the Exhibition, especially motorists seeking to make a left turn onto US 50 during the peak period. The vast majority of these movements would be made by local traffic and recreational users rather than Exhibition visitors. During the peak period of the Exhibition phase, it is anticipated that delay for left turns from driveways and minor intersections will be between 1-2 minutes depending on “platooning” of vehicles (discussed below). The overall number of these movements would be relatively low. While open pull-outs might be attractive to visitors, these locations are quite likely to be full. This is expected to create platooning of vehicles that will provide opportunities for turning movements. Most motorists entering turnouts would be making

a right turn in and a right turn out rather than left turns in and left turns out. Consequently, the overall number of these conflicting movements would be relatively low.

Major roadway intersections and intersections associated with open recreation sites would be controlled with temporary signals operated by a trained traffic technician to minimize overall intersection delay. Estimated maximum left turn delays may stretch into minutes where passing is limited or not possible, but individual delays would be at the discretion of the traffic control officer based on traffic conditions. Estimated right turn delays would be expected to be minimal except at Parkdale and Fremont Road. The remaining low volume intersections would not be controlled, so motorists would need to find safe gaps in the traffic for making turns. These delays are not expected to be substantial due to “platooning” of vehicles. In other words, a series of gaps between groups of vehicles would be created ahead of slower moving vehicles naturally causing groups of vehicles to travel together in groups or platoons.

Similar levels of delay would be expected at locations where eastbound motorists choose to make a left turn into designated recreation sites with parking and access control and westbound and eastbound motorists who could choose to make a left turn into undesignated parking areas (pullouts/pull-offs) that remain open during the Exhibition and are not controlled.

A total of 56 pullouts/pull-off opportunities would be closed, leaving a remainder of 79 locations where motorists could elect to turn left (42 on the north side of US 50 and 37 on the south side of US 50). These turning movements could add delay and overall travel time that was not estimated with the VISSIM model.

The only prohibited left turn movement for eastbound motorists would be at Parkdale. Eastbound motorists seeking access to Parkdale would be required to proceed further east to the Fremont Road parking lot. At Fremont Road, these motorists would make a left turn into the parking lot then turn around in the parking lot. Signing on US 50 would direct traffic to this safer u-turn opportunity.

Some motorist may make legal, but potentially unsafe left turns across traffic into and out of pullouts, with some motorists effectively making u-turns, in various locations within the corridor. Safety concerns would increase with increasing traffic volumes. During the Exhibition peak periods, temporary median barriers would prevent left turns into and out of pullouts between Texas Creek and Parkdale. These barriers measure would be used at approximately six pullouts in key locations

In order to respond to the demand for u-turns, a special facility for this purpose is recommended as a mitigation measure. Based on VISSIM modeling, the u-turn movement located west of Texas Creek (See Figure 6) is expected to operate with moderate delays, but would not be expected to impact US 50 through movement operations. The temporary facility would handle westbound visitors who have seen most of the Exhibition and choose to turn around prior to the remaining panel sites. Through movement delay from this facility is included in the predicted delay from the VISSIM model.

Travel Time Delay: Parkdale Intersection and Parking Lot Performance

Travel time delay at the Parkdale intersection and parking lot performance was analyzed for Alternative 1a (no acceleration or deceleration lane conditions) and under mitigated conditions (similar to Alternatives 1c, 1d, 2, and 3, See Figure 5). Table 27 clarifies the conditions with and without acceleration and deceleration lanes.

Table 27. Parkdale Parking Lot Intersection Auxiliary Lane Analysis

Intersection Condition	Maximum WB Through Movement Delay on US 50 at Parkdale Intersection (Minutes)	Maximum Delay out of Parking Lot (Minutes)	95th Percentile Queue Lengths WB/EB (Feet)
No Acceleration or Deceleration Lane	7.3	55.1	9350/1275
Acceleration Lane Only	3.9	7.9	5,495/1,210
Deceleration Lane Only	0.4	22.0	230/1,525
Acceleration and Deceleration Lane	0.3	7.9	170/1,245

Based on the delays presented in Table 27, the acceleration and deceleration lanes are needed as a mitigation measure for Alternative 1a. Without these auxiliary lanes the westbound US 50 queues at Parkdale would be almost two miles in length. This would equate to through movement delays reaching approximately eight or more minutes at just this one location. In addition, delays for vehicles exiting Parkdale would be just under an hour. These conditions would improve considerably with the inclusion of either an acceleration or deceleration lane, but through movement delays on US 50 and/or parking lot delay would be considered substantial in either case (See Table 27).

VISSIM modeling results for parking lot delays assume free-flow conditions in and out of the parking lots are achieved and that the design of the parking lots provides for efficient loading and unloading. VISSIM modeling results for the Parkdale Parking lot indicate that the demand for parking at Parkdale (894 spaces) would be near capacity of the 900 spaces to be provided. VISSIM modeling results for the Texas Creek parking lot indicates that the demand for parking at Texas Creek would be about 35 spaces. Parking lot closures due to limited capacity are not anticipated in either location assuming auxiliary lanes are present.

Delay for northbound motorists crossing the one lane bridge at Texas Creek are not anticipated based on anticipated traffic volumes and because flaggers located at both ends of the bridge will work together to avoid delays and prioritize the northbound movement.

Travel Time Delay: Beyond the Project Limits

Cañon City US 50 Intersections

Alternative 1a visitor routing estimates indicate that many visitors would pass through Cañon City to and from the Exhibition area using US 50. The peak period for traffic in both directions within Cañon City would occur on Saturday or Sunday between about 11:00 AM and 2:00 PM, but would be only slightly lower between about 10 AM and 11 AM and 2:00 to 4:00 PM. These traffic volumes would create heavy traffic conditions resulting in decreased LOS at intersections (See Table 28). With these LOS levels, travel time through Cañon City between 11:00 AM and 2:00 PM would be expected to increase by about 1.5 minutes in the westbound direction and by about 30 seconds in the eastbound direction. This limited increase in travel time for through-movements on US 50 reflects how the signal timing favors the through movements on US 50.

Table 28. Level of Service in Cañon City

Intersection	2013 No Action		2013 Alternative 1a		2013 Alternative 1c		2013 Alternative 1d	
	HCM LOS	Delay (sec)	HCM LOS	Delay (sec)	HCM LOS	Delay (sec)	HCM LOS	Delay (sec)
US 50/Mackenzie Ave.								
<i>Overall</i>	B	14.5	B	19.9	B	15.7	B	14.5
<i>NB</i>	D	49.1	D	41.7	D	41.7	D	49.1
US 50/Justice Center Rd.								
<i>Overall</i>	B	10.6	A	9.2	A	9.1	B	10.6
<i>NBTH/LT</i>	D	43.7	D	50.1	D	50.1	D	43.7
US 50/ Dozier St.								
<i>Overall</i>	B	13.3	D	35.2	C	25.0	B	13.3
<i>SBLT</i>	D	37.8	E	63.5	D	42.5	D	37.8
<i>WBTH</i>	B	12.9	D	52.4	C	34.3	B	12.9
US 50/ Raynolds Ave.								
<i>Overall</i>	C	28.8	D	38.6	D	36.3	C	28.8
<i>NBTH/LT</i>	E	67.9	E	79.4	E	79.4	E	67.9
<i>EBLT</i>	C	21.1	D	47.4	C	32.3	C	21.1
<i>WBTH</i>	C	30.9	D	51.6	D	44.8	C	30.9
US 50/ Orchard Ave.								
<i>Overall</i>	B	16.6	B	19.4	B	16.5	B	16.6
<i>NBTH/LT</i>	E	64.5	E	60.4	E	60.4	E	64.5
<i>EBLT</i>	C	30.2	D	47.4	D	40.7	C	30.2
US 50/15th St.								
<i>Overall</i>	C	26.8	C	34.4	C	24.8	C	27.1
<i>SBLT</i>	E	64.8	E	64.8	E	76.1	E	64.8
<i>SBTH</i>	E	64.9	E	64.9	E	76.1	E	64.9
<i>EBLT</i>	C	34.3	D	54.3	D	49.6	D	35.2
US 50/ 9th St.								
<i>Overall</i>	D	36.4	E	57.6	D	44.7	D	36.4
<i>NBTH</i>	E	76.8	F	136.1	E	70.2	E	76.8
<i>NBRT</i>	D	51.1	E	57.3	D	49.9	D	51.1
<i>NBLT</i>	C	30.7	D	47.3	C	33.2	C	30.7
<i>SBTH</i>	D	43.3	F	151.5	D	48.1	D	43.3
<i>SBLT</i>	E	69.6	F	125.5	E	76.4	E	69.6
<i>EBTH</i>	D	49.3	E	78.9	E	74.7	D	49.3
<i>WBLT</i>	C	31.3	E	72.8	E	58.9	C	31.3
US 50/3rd St.								
<i>Overall</i>	A	7.1	A	8.2	A	6.5	A	7.1

Table 28. (cont.)

Intersection	2013 Alternative 2		2013 Alternative 3		2013 Alternative 4	
	HCM LOS	Delay (sec)	HCM LOS	Delay (sec)	HCM LOS	Delay (sec)
US 50/Mackenzie Ave.						
<i>Overall</i>	C	21.2	B	17.8	B	14.7
<i>NB</i>	D	41.7	D	41.7	D	49.1
US 50/Justice Center Rd.						
<i>Overall</i>	A	9.3	A	9.2	A	9.4
<i>NBTH/LT</i>	D	50.1	D	43.7	D	43.7
US 50/ Dozier St.						
<i>Overall</i>	C	34.5	C	34.2	B	18.9
<i>SBLT</i>	E	63.5	E	63.5	D	49.4
<i>WBTH</i>	D	47.8	D	53.0	C	25.1
US 50/ Raynolds Ave.						
<i>Overall</i>	D	39.6	D	41.5	C	31.8
<i>NBTH/LT</i>	E	79.4	E	73.5	E	71.1
<i>EBLT</i>	E	56.3	E	56.8	D	36.9
<i>WBTH</i>	D	53.0	E	56.7	D	35.6
US 50/ Orchard Ave.						
<i>Overall</i>	C	20.4	B	18.4	B	17.7
<i>NBTH/LT</i>	E	60.4	E	60.4	E	60.4
<i>EBLT</i>	D	48.6	D	49.2	D	43.5
US 50/15th St.						
<i>Overall</i>	D	37.1	D	37.9	C	27.9
<i>SBLT</i>	E	64.8	E	70.5	E	70.5
<i>SBTH</i>	E	64.9	E	70.2	E	70.2
<i>EBLT</i>	D	52.3	E	64.4	D	49.4
US 50/ 9th St.						
<i>Overall</i>	E	61.6	D	50.4	D	43.8
<i>NBTH</i>	F	166.3	E	69.0	E	70.2
<i>NBRT</i>	E	78.8	D	52.1	E	58.4
<i>NBLT</i>	E	62.9	D	40.4	D	41.7
<i>SBTH</i>	F	145.8	D	44.8	D	44.8
<i>SBLT</i>	F	142.5	E	66.5	E	76.4
<i>EBTH</i>	E	75.2	E	72.8	D	53.8
<i>WBLT</i>	E	73.8	E	67.1	E	76.3
US 50/3rd St.						
<i>Overall</i>	A	9.5	A	7.7	A	7.8

Table 29. Corresponding Travel Time Through Cañon City

Alternative	Travel Time (seconds)		Travel Time (minutes)	
	WB	EB	WB	EB
2013 No Action	471.7	488.8	7.9	8.1
Alternative 1a	584.7	512.2	9.7	8.5
Alternative 1d	611.9	510.3	10.2	8.5
Alternative 2	580.4	503.6	9.7	8.4
Alternative 3	487.0	494.5	8.1	8.2
Alternative 4	584.7	512.2	9.7	8.5

Salida US 50 Intersections

Salida roadway LOS was estimated using 2008 CDOT annual average daily traffic counts. Coaldale ATR data was used to estimate the mid-July to mid-August weekend peak hour traffic volumes. The traffic volumes were grown to estimate 2013 traffic volumes based on CDOT's growth factor. HCM software was used to calculate the eastbound and westbound roadway level of service at locations with CDOT data. Table 30 shows the results. All roadway segments operate at a level of service "C" or better for all alternatives.

Table 30. Intersection Level of Service in Salida

Roadway Segment	2013 No Action		2013 Alternative 1a		2013 Alternative 1c		2013 Alternative 1d	
	HCM LOS		HCM LOS		HCM LOS		HCM LOS	
	EB	WB	EB	WB	EB	WB	EB	WB
East of G St	B	B	B	C	B	C	B	C
East of E St	B	B	B	C	B	C	B	C
East of Teller St	B	B	B	B	B	B	B	B
West of SH 291	B	B	B	B	B	B	A	B
East of SH 291	A	A	A	B	A	B	A	B

Table 30. (cont.)

Intersection	2013 Alternative 2		2013 Alternative 3		2013 Alternative 4	
	EB	WB	EB	WB	EB	WB
East of G St	B	C	B	C	B	C
East of E St	B	C	B	C	B	C
East of Teller St	B	C	B	B	B	B
West of SH 291	B	B	B	B	A	B
East of SH 291	A	B	A	B	A	A

The presence of a information center in Salida would increase turning movements in the vicinity of the selected site. The Windmill and the Community Center sites would add vehicle traffic in the Downtown area, while the Stockyards site would only increase traffic within the Stockyard complex.

Anticipated Downtown traffic from the information center would be adequately accommodated by a mix of Downtown streets. The existing lane configuration of U.S. 50 at the downtown sites provides for left turn access into the Downtown sites. If queues develop from motorist waiting to turn left at primary access locations (I Street, State Street, and Milford Street) motorists will have other options for turning left into the Downtown area and through traffic will be able to drive past the queue.

Left turns from I Street, State Street, Milford Street and other downtown streets onto U.S. 50 could be delayed by through traffic. However, the resulting queues are not expected to be long. If relatively long queues develop, motorists would have alternative locations to make left turns. Right turns into and out of the Downtown sites would be accommodated without much delay.

In general, the Stockyard site would present distinct traffic advantages relative to the downtown site because the existing intersection has acceleration, deceleration and left turn lanes and fewer conflicting movements from surrounding uses.

US 285/US 50 Intersection

As shown in Table 25, the northbound and southbound US 50/US 285 intersection movements would operate at LOS F with unsignalized conditions. Estimated delay under these conditions would be approximately 2 to 5 minutes. Consequently, a temporary signal would be needed to maintain adequate performance at this intersection during peak periods. With a temporary signal, the LOS would be improved to LOS C and D. Estimated delay under these conditions relative to 2013 No Action conditions would be negligible (See Table 25).

US 50 Intersection/State Highway 115

As shown in Table 25, the eastbound and westbound movements at the US 50/State Highway 115 intersection would operate at LOS F with unsignalized conditions. Estimated delay under these conditions would be minimal for right turns onto US 50. Left turns from US 50 to northbound State Highway 115 would be delayed. Consequently, a temporary signal would be needed to maintain adequate performance at this intersection during peak periods. With a temporary signal, the operations would be improved to LOS B and D. Estimated delay under these conditions relative to 2013 No Action conditions would be negligible (See Table 25).

Other Regional Routes and Local Roads

Other regional routes, intersections and local roads beyond Salida and Cañon City would be expected to have heavier traffic than under normal August conditions, but the resulting conditions would not be expected to change significantly because of the dispersion of traffic on the regional and local roadway network.

Travel Time Delay: Crashes and Other Incidents

If vehicle crashes or other incidents such as a rock fall, flooding, or hail occur that require emergency response, minor to significant delay would be expected along US 50 under peak period and non-peak periods. A wide range of possible incidents could occur and each possibility

could create a unique condition and corresponding levels of delay. The incidents that would be expected to create the most delay would be multiple vehicle collisions and serious crashes involving fatalities and/or injuries or natural events that require road closure. The incidents that would be expected to create the least delay would be minor accidents (fender benders) and routine traffic stops for moving violations or parking violations.

Two incident delay scenarios were simulated in the VISSIM model. A five minute incident was modeled to assess the effects of a minor fender bender collision or flat tire. A 20 minute incident was modeled to assess the effects of a major collision. This modeling was performed because the probability of an incident during the exhibition is likely to be increased relative to typical conditions. Some factors that may contribute to an increased probability for incidents include the fact that many of the visitors will be unfamiliar with U.S. 50, higher levels of traffic, and exhibition features and activities present at numerous locations along U.S. 50 contributing to driver distraction.

The five minute delay scenario generated a vehicle queue of approximately 1.2 miles. The model estimated that delayed conditions would last approximately 43 minutes. The maximum queue would involve slightly over 250 vehicles while traffic is stopped. Approximately 750 total vehicles would be delayed before the traffic returns to normal speeds.

The twenty minute delay scenario generated a vehicle queue of approximately 2.9 miles. The model estimated that delayed conditions would last approximately 138 minutes. The maximum queue would involve slightly over 600 vehicles while traffic is stopped. Approximately 2,450 total vehicles would be delayed before the traffic returns to normal speeds.

Actual incident conditions would vary based on incident severity, location, and time of day. Both Scenarios assume that traffic is released in both directions at the same time at the end of the incident. If traffic must be alternated in a one-way operation the delays would be greater. In addition to delays on U.S. 50, a queue created by an incident could impact traffic accessing US 50 including access to major intersections, private property, recreation areas, and project parking areas. An Event Management Plan including an Incident Management Plan will be created prior to the exhibit to keep incident delays to a minimum.

The 2008 Event Management Plan anticipated minor incidents, major incidents and incidents that might require road closure, detours or corridor evacuation. A variety of measures in the 2008 Event Management Plan are proposed to handle a wide range of incident possibilities. Examples of key emergency measures designed to create rapid responses and minimize incident delay include:

- Exhibition phase communications will be managed through a command post to ensure seamless communications among emergency service providers and proper execution of an overall communication plan.
- Emergency services and vehicles will be located in the corridor during the Exhibition phase in order to ensure their availability and timely response during the Exhibition.

- A medical helicopter will be staged at the Texas Creek during the Exhibition to ensure that there is a medical transportation option with quick response times.
- Law enforcement or security vehicles and personnel will be staged in existing river side pullouts in each fabric panel area and at Parkdale, Five Points, Salt Lick, Pinnacle Rock, Texas Creek, Lone Pine, and at the west and east end of the project corridor.
- Firefighting equipment will be staged at Texas Creek and smaller caches of handheld firefighting equipment will be located at Parkdale, Vallie Bridge and at the west and east end of the project corridor to minimize visitor traffic interference and response times.
- Towing and vehicle assistance personnel will be staged at Parkdale Boat Access, Five Points, Texas Creek, Vallie Bridge and at the west and east end of the project corridor to provide assistance.
- Hazardous materials containment, mitigation materials and equipment will be placed at the staging and lay down area so that they are available quickly.
- A Corridor Evacuation Plan, developed in conjunction with local agencies and emergency management staff, will be in place. Law enforcement personnel, emergency service providers, and information centers/signs will be available in the corridor during the exhibition phase for plan implementation.

These measures and others would be in place during the Exhibition and would adequately address risks and potential delays from crashes and natural incidents.

Travel Time Delay: Especially Slow Drivers (Visitors)

The Exhibition provides motorists with various opportunities to drive past areas where fabric panels are visible from the westbound lane. Some drivers may try to drive far slower than posted speeds near panel sites or elsewhere when they are alone on the road or when other motorists are following them. In some instances, this delay would be acceptable to motorists following the slow driver and would encourage an overall reduction in speeds. In other instances, travel well below the posted speed would be unacceptable to motorists who are not traveling along US 50 to see the art. While some of this sort of delay has been modeled, there could be instances where delay is beyond what has been estimated using the VISSIM model. The extent of the delay caused by especially slow drivers would depend on when the slow down occurs, how often such slowdowns occur, and how effective monitors and law enforcement presence can discourage especially slow speeds and/or stopping in various viewing locations. Various measures are proposed to prevent vehicles from stopping or driving slower than the posted speeds. The overall delay findings presented in Table 4-60 reflect an average of 25 mph within panel locations and occasional vehicle stops in panel areas. These occasional stops are not allowed, but are expected to occur. One reason for such stops would be a driver stopping for a quick photograph. Longer stops in panel areas may also occur, but on site monitors will be in place to prevent these occurrences. The short stops will create platoons of vehicles. In some instances, the platoons that are delayed by such stops are likely to make up the delay by catching the platoon ahead of them. In other cases, additional delay would be experienced. The estimated delay from short

stops and slow vehicles in panel sites is included in the VISSIM model results presented in Table 4-60.

Overall Operation and Performance Findings

The overall accumulated Exhibition Phase delays during the peak period of the peak day would be considered significant short-term effects requiring the proposed set of event management measures, additional mitigation, and measures tailored to actual conditions during the event. At other times, the delays would be considered moderate to minor short-term effects.

Effects on the Regional and Local Transportation Network: Mobility and Access

National, State and Local Travel Diversions

Anticipated vehicle volumes on US 50 and related travel delays during the Exhibition Phase may cause travel diversions for the two week Exhibition Period. These diversions would incrementally increase vehicle travel on other roads in the area, thereby increasing travel times, and travel costs. Interstate and intrastate truck traffic that would normally use US 50 during the Exhibition Phase may choose to take different routes during the peak periods of the peak days or shift their travel to off peak times. Given that the surrounding alternate routes are rural routes that have low or no congestion, the impacts of diverted traffic are not expected to be significant or create new congestion issues.

Residential, business and tourism traffic accustomed to US 50 travel conditions in a normal early August period would be delayed and various locations along US 50 would be inaccessible due to parking prohibitions and use restrictions. Mobility and access associated with residential driveways and residential areas intersecting with US 50 would be reduced during heavy traffic periods. Left turns in and out of these intersections would experience more delay during busy peak periods resulting in mobility and access effects especially between Parkdale and the u-turn location proposed west of Texas Creek.

Diversions to the north or south, for example State Highway 160 or roadways located southwest of the project corridor, would be expected to be minor and limited because the accumulated peak day peak period delays do not appear to be long enough to justify the extended detour/diversion travel times. If delays somehow reached that point, the duration of that condition would be relatively short and would only impact a portion of the background traffic.

School Bus Service Disruptions

The Exhibition Phase for Alternative 1a would be in the first two weeks of August when most elementary, middle and high school students are not attending classes. No school bus transit service disruptions would be anticipated during this timeframe.

Royal Gorge Passenger Rail Ridership

Alternative 1a would have various impacts on Royal Gorge passenger rail ridership. The existing passenger service does not provide any view of the art due to the location of the railroad's turn

back position at Parkdale. Consequently, train access to Parkdale would have virtually no impact on train ridership demand. However, many art visitors would not only be expected to view the art, but may also choose to ride the train through Royal Gorge. This would increase train ridership demand. Finally, many potential rail riders would elect to avoid the Exhibition Phase and would defer their train trip to another time of year or year, or would choose to go elsewhere and do other things during the Exhibition Phase. This would decrease ridership demand. The net effect is uncertain, but an overall increase in demand is expected given all of the attention that would be focused on the area. A response to additional demand by the private rail operator is not part of Alternative 1a, but a response is likely to occur.

The Royal Gorge railroad operators may address the anticipated temporary increase in demand in various ways:

1. Longer trains with more passenger capacity under the existing schedule
2. More trains with the same passenger capacity under a new more frequent schedule
3. More trains and longer trains under a more frequent schedule
4. Enhanced and/or different services with each trip, including specialty services
5. Increased trip pricing during the high demand periods

Longer trains in Cañon City could have local effects on roadway intersections that are blocked during train movements.

Freight Rail Effects

The Royal Gorge passenger trains share the tracks with freight operations. If the passenger rail service schedule changes in response to increased demand caused by Alternative 1a, any effects on freight operations would need to be resolved prior to changing the schedule. Consequently, no indirect Exhibition Phase freight rail effects would be expected.

Airport and Airspace Effects

The Exhibition is expected to generate interest in airplane and helicopter flyovers where the art can be viewed from the air. Alternative 1a proposes temporary airspace restrictions in addition to existing airspace restrictions to prevent airspace congestion above US 50 between Cañon City and Salida and related nuisances such as aircraft noise in Exhibition areas. Outside of the immediate project area, no significant airport or airspace effects would be expected.

Emergency Response Effects

Emergency response vehicles would be delayed to various degrees along the US 50 corridor during the Exhibition due to a variety of factors, but the 2008 Event Management Plan includes a wide range of measures to provide emergency response vehicles and emergency service providers in locations where incident response times within the corridor are considered acceptable.

Effects on Traffic Safety

Potential effects on traffic safety during the Exhibition Phase include:

- Higher than normal levels of traffic, congestion, and delay which can create driver frustration and lead to driver misjudgment or error.
- Driver distractions including, but not limited to art viewing, sightseeing, people watching, driving through unfamiliar cone zones, increased driving on unfamiliar roads, increased driving at night, an increased number of impaired drivers in the corridor.
- Adding traffic to areas where geologic risks exist.

These factors would increase potential safety risks and the possibility for crashes, but would be offset to some degree by slower travel speeds throughout the corridor (lower average accident severity) and a high level of monitoring and law enforcement presence. A wide range of measures common to all alternatives are proposed to address Exhibition Phase influences on traffic operations and safety. The overall effect on traffic safety is expected to be moderate and short-term.

5.2.3 Demobilization Phase

The effects of the Demobilization Phase of Alternative 1a would be the same as those described in Section 5.2.1 for the Installation Phase with two exceptions.

1. Visitor traffic on the busiest Saturday and Sunday of the Demobilization would be slightly less than the busiest Saturday and Sunday of Installation because the anticipated visitation in the week after Exhibition is expected to be less than the week prior to the Exhibition.
2. The Demobilization Phase is far shorter than the Installation Phase and occurs into the fall season when background tourist travel levels are reduced. Anticipated lane closures would occur on 24 days of an approximate demobilization period of 90 days (3 months). The anticipated lane closures would be more frequent than the closures during the Installation Phase, but the individual delays would still be minimal.

5.3 Alternative 1c

5.3.1 Installation Phase

Alternative 1c has the highest visitation estimate for the Installation Phase (47,000 visitors with Alternative 1c vs. 36,000 visitors with Alternative 1a). However, these higher estimates would not generate a substantial difference relative to the results presented for Alternative 1a.

5.3.2 Exhibition Phase

The Exhibition Phase effects of Alternative 1c would be the same as Alternative 1 with two exceptions. Alternative 1c includes the acceleration/deceleration lanes at Parkdale, and it includes one additional week where substantially lower visitation and associated traffic effects would be created. The benefit from the acceleration/deceleration lanes would be an overall travel time savings of 10 minutes in the westbound direction relative to Alternative 1a without these lanes (See Table 4-21).

Exhibition period visitation in the third week would be expected to drop to about 45 percent of the visitation in the first two weeks of Alternative 1c (172,000 for the first two week vs. 95,000 in the third week). Effects during the third week would be similar to the first week, but the intensity of those temporary effects would be substantially reduced making them moderate rather than significant effects.

Alternative 1c would create an additional week of demand on law enforcement, emergency, and highway support staff. This may require expanding the geographic area used to find sufficient numbers of people available to provide support staff services or burden local area agencies with the added demand for personnel.

5.3.3 Demobilization Phase

Alternative 1c has the highest visitation estimates for the Demobilization Phase. However, these higher estimates would not generate a substantial difference between the results presented for Alternative 1a.

5.4 Alternative 1d

5.4.1 Installation Phase

The effects of Alternative 1d would be the same as those for Alternative 1a except that a similar amount of Installation Phase work would occur over a period of one year rather than two years (380 days/28 months). This difference would reduce the time period where the project delays motorists, but would double the frequency of the delays during the Installation phase. However, even with the shorter Installation Phase, lane closures and pull off area closures would not be expected in more than one location at a time.

5.4.2 Exhibition Phase

The effects of Alternative 1d during the Exhibition would be the same as those associated with Alternative 1a, except for benefits of the acceleration/deceleration lanes (See Alternative 1c), changes in traffic operations and performance outcomes and September vs. August bus service effects.

Effects on the Regional and Local Transportation Network Operations and Performance

Alternative 1d is expected to generate 120,000 fewer visitors than Alternative 1a, but peak weekends in September are likely to attract a far high proportion of visitors relative to weekdays than the same comparison during the summer vacation season.

Although the September weekends would be busy, the traffic volumes and associated effects on weekdays are expected to be substantially less than those calculated for Alternative 1a.

School Bus Service Delays

The Exhibition Phase for Alternative 1d would be in September when most elementary, middle and high school students are attending classes and weekday bus service is provided along US

50. As a result, some school bus transit service delay would be anticipated in September. The 6:00-8:00 AM service would not be delayed as much as midday kindergarten service, and the 4:00-6:00 PM service.

The anticipated delay would relate to traffic volumes for Friday and Monday, and Tuesday through Thursday. Most September traffic is expected on Saturday and Sunday, with Friday and Monday having one half of the traffic as a busy weekend day and Tuesday through Thursday having one third of the traffic as a busy weekend day. Based on these factors and the bus routes, the anticipated delays would generally be less than five minutes. This short-term impact would be considered minor.

Safety concerns associated with school children potentially crossing US 50 at or near US 50 during the Exhibition is a potentially significant effect that could be mitigated with precautions defined by the school district, CDOT and CSP.

5.4.3 Demobilization Phase

The demobilization effects would be similar to those described for Alternative 1a. Alternative 1d offers a minor reduction in the level of effects because the demobilization activities would occur after the summer peak traffic period.

5.5 Alternative 2

5.5.1 Installation Phase

The installation effects would be the same as Alternative 1a but with a slightly higher visitation (38,000 vs. 36,000 with 1a) during the Installation Phase. However, this difference is inconsequential.

5.5.2 Exhibition Phase

The installation effects would be the same as Alternative 1a but with the benefits of the acceleration/deceleration lanes, and a higher visitation and vehicle travel under Alternative 2. Overall westbound travel times through the corridor would be 10 minutes lower than Alternative 1a, but some intersection LOS would be worse (See Tables 25, 26, 28, 29 and 30).

5.5.3 Demobilization Phase

The effects would be the same as Alternative 1a but with a slightly higher visitation (38,000 vs. 36,000 with 1a) during the Demobilization Phase. However, this difference is inconsequential.

5.6 Alternative 3

5.6.1 Installation Phase

The installation effects would be the same as described for Alternative 1a but with a slightly lower visitation. This difference is inconsequential.

5.6.2 Exhibition Phase

The Exhibition Period effects would be similar to Alternative 1a, except with the benefits of the acceleration/deceleration lanes and with slightly improved traffic operations and performance. The slight reductions in visitation provide minor benefits (See Tables 25, 26, 28, 29 and 30).

5.6.3 Demobilization Phase

The demobilization effects would be the same as described for Alternative 1a but with a slightly lower visitation. This difference is inconsequential.

5.7 Alternative 4

5.7.1 Installation Phase

Alternative 4 would considerably reduce the number of days of lane closures. Additionally, the visitation reduction projected during the Alternative 4 installation period would substantially reduce effects from Alternative 1a.

5.7.2 Exhibition Phase

The Exhibition Period effects would be similar to Alternative 1a, except that Alternative 4 would offer improved traffic operations and performance relative to Alternative 1a. Reductions in visitation provide benefits as shown in Tables 25, 26, 28, 29 and 30.

With Alternative 4, no acceleration or deceleration lanes at the US 50/Parkdale intersection would be needed because the Parkdale area would not be open to visitors.

Based on the facilities proposed at the Texas Creek visitor area and their location on the south side of the bridge, traffic volumes using this facility would not be expected to be especially high. Bridge capacity should be adequate for event management purposes. Intersection control and temporary measures to manage commercial parking lot motor vehicle movements would be needed in this location.

5.7.3 Demobilization Phase

Alternative 4 would considerably reduce the number of days of lane closures. Additionally, the visitation reduction projected during the Alternative 4 demobilization period would substantially reduce effects from Alternative 1a.

5.8 Summary Comparison of All Alternatives

5.8.1 Installation and Demobilization Phase

The effects during the Installation and Demobilization Phase would be the similar for Alternatives 1a, 1c, 2 and 3. The effects for Alternative 1d would be reduced because only 26,000 visitors are anticipated compared to 36,000 with Alternative 1a. However, 1d Demobilization introduces

school bus impact issues because of a September Exhibition. The effects for Alternative 4 would be substantially less than those for all of the other alternatives.

5.8.2 Exhibition Phase

Tables 25 and 26 present the primary findings for the peak day peak period of the Exhibition Phase for all alternatives. In summary, maximum peak period peak day LOS decreases and travel time increases over baseline (No Action) conditions in 2013 are similar for Alternatives 1a through 3. These delays generally reflect lower overall average speeds throughout the corridor, at some intersections and panel viewing sites.

Additional delay, not accounted for in the model would include: intersection delay beyond the project corridor, crashes and associated emergency response requirements, motorists driving far lower than posted speeds near panel sites or elsewhere, and waiting for vehicles to turn left in two-lane sections of US 50 where pull-offs have not been closed at recreational sites. The potential additional delay from these sources would generally be incidental and comparable for all of the alternatives.

Delay for motorists entering into and exiting out of the parking lots would be experienced by visitors rather than non-visitors as long as the acceleration and deceleration lanes at Parkdale are included.

With respect to Levels of Service effects at key intersections, the alternatives are similar with some minor geographic (specific intersection) differences and generally better LOS for Alternative 4 (See Table 25).

5.9 Cumulative Effects

There are no past, present, or reasonably foreseeable projects that would add to the project's traffic and transportation effects as described previously in Chapter 5. The effects presented in 2013 would be the overall effects in 2013.

5.10 Unavoidable Adverse Effects

The adverse transportation and traffic effects created by the Build Alternatives that would be considered unavoidable include:

- Increased demand for the construction, operation and maintenance of roadway and railroad facilities
- Increased demand for summer peak period roadway capacity involving temporary travel delays, access limitations and reduced mobility along US 50, particularly for corridor residents, businesses and traditional tourists.

5.11 Irreversible and Irretrievable Commitments of Resources

Implementation of the Action Alternatives would involve the commitment of transportation resources in terms of temporarily using the available travel capacity on US 50, a wide range of

transportation equipment, and the time, energy, skills and expertise of various public safety, transportation planning and transportation design personnel. These uses of resources would be considered irreversible and irretrievable. OTR is expected to compensate for these effects with funding for a wide range commitments and mitigation measures attached to the alternatives analyzed in the EIS and ultimately the preferred alternative. The commitment of these public and private resources would be based on the concept that visitors seeing the Exhibition would benefit from the experience and that the event would occur in a manner compliant with the BLM's, CDOT's and CSP's management policies and recommendations.

5.12 Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The temporary use of the available travel capacity on US 50, a wide range of transportation equipment, and the time, energy, skills and expertise of various public safety, transportation planning and transportation design personnel would not have a direct relationship with the maintenance and enhancement of long-term transportation network productivity. The relationship would be short-term. Long term transportation effects would be minimal. No long-term change in roadway capacity or facility productivity would be expected. The temporary bridge needed at Parkdale would be removed along with other transportation equipment and materials used to manage traffic. The only long term enhancement would be repairs to the portion of the railroad needed to facilitate the Installation and Demobilization phases of the project.

6.0 MITIGATION AND MONITORING

Each of the Action Alternatives includes a variety of commitments intended to avoid, minimize or mitigate potential effects of the alternative (See Chapter 2 “Design Features/Environmental Protection Measures). The following measures are recommended to supplement these commitments by addressing specific effects that the original commitments do not address and by defining applicable mitigation monitoring requirements.

The following mitigation measures are applicable to all alternatives, unless otherwise noted.

6.1 Traffic Control Beyond the Project Corridor During the Peak Period of the Peak Day During Exhibition

Temporary traffic control at the US 50/US285 and US 50/State Highway 115 intersections should be provided during the Exhibition Phase on Saturday and Sunday between 10:00 AM and 4:00 PM.

Temporary adjustments to traffic signals in Canon City and Salida may be needed to increase through movement efficiency during each signal phase during the Exhibition Phase on Saturday and Sunday between 10:00 AM and 4:00 PM. OTR shall provide revised signal timing plans for all signalized intersections in Canon City and Salida for CDOT to review prior to the exhibit.

6.2 Traffic Monitoring

Actual traffic volumes should be monitored over a six week period, 2 weeks before, 2 weeks during and two weeks after the Exhibition. The monitoring program should report actual traffic counts relative to the EIS modeling and effects analysis results.

6.3 Transportation Demand Management (TDM)

A Transportation Demand Management (TDM) plan should be created for the preferred alternative. The TDM plan should include measures to shift anticipated peak period visitation to off peak periods and to increase carpooling (personal vehicle occupancy rates), and the use of vans, shuttles and buses. TDM outreach efforts and associated campaigns should include sending targeted messages via traditional media (television, radio, newspapers, etc.) and new social media (YouTube, Facebook, Twitter, and newer tools that emerge by 2013) with the goal of reducing peak period travel delays and enhancing visitor experience.

6.4 Alternative 1a

A new 350-foot right turn acceleration lane and a 350-foot right turn deceleration lane at the US 50 at the Harvey bridge intersection should be provided along with temporary lane striping and/or delineation with standard traffic devices and appropriate signs (See Figure X).

6.5 Alternative 1d

Same as Alternative 1a with an additional measure to address school children riding buses.

Safety Precautions for School Children at Bus Stops During Exhibition

Safety precautions at school bus stops should be provided during the Exhibition Phase of Alternative 1d as set forth by the school district in cooperation with CDOT and CSP.

6.6 Reclamation of CDOT Right of Way (ROW)

Any disturbed areas within the CDOT ROW will need to be reclaimed in accordance with CDOT standards and CDPHE CDPS permit. The application of native seed mix and other reclamation techniques will need to be approved by CDOT prior to the project.

APPENDICES

- A. Parkdale Intersection Concept Design**
- B. U-Turn Facility Concept Design**
- C. Transportation and Traffic Calculations**

Appendix A - Parkdale Intersection Concept Design

Existing Conditions

The existing pavement section is approximately 30-feet wide and consists of approximately 3-foot shoulders and 12-foot lanes. Guardrail runs continuously along the north side of US 50.

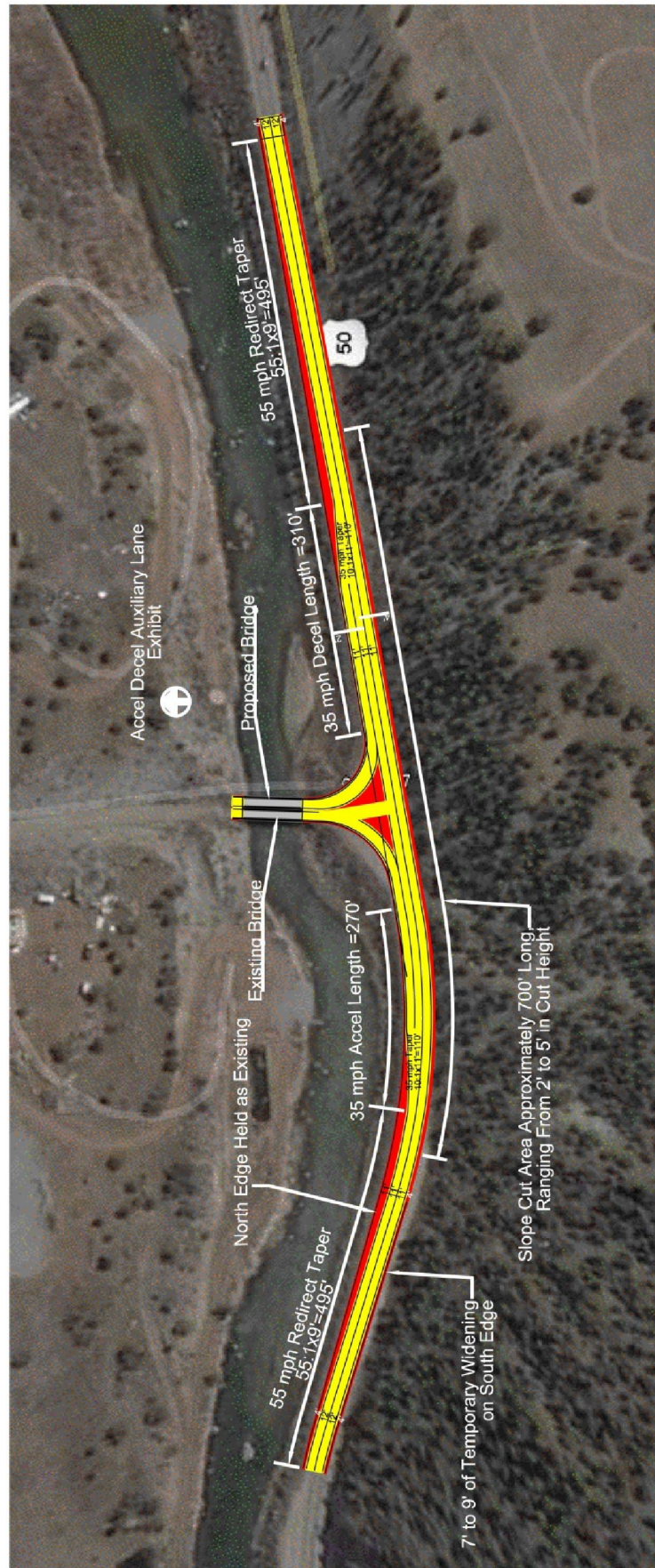
Auxiliary Lane Design

To accommodate projected traffic volumes and to improve safety on US 50 during the event, acceleration and deceleration lanes are recommended. To minimize impacts associated with road widening, the concept design utilizes 11-foot lane widths, 2-foot WB shoulder adjacent to the existing guardrail, and 3-foot EB outside shoulder for a total pavement width of 38-feet. The north edge of pavement was held constant and widening occurs to the south or along EB US 50 to eliminate any impacts to the existing guardrail and the Arkansas River.

Approximately 7 to 9-feet of widening will be required to accommodate the acceleration/deceleration auxiliary lanes. The existing embankment slope varies from approximately 3:1 to 2:1 and will require a combination of cut slopes, temporary barrier, and retaining walls (based on geotechnical recommendations) to accommodate the widening while minimizing the cut slopes/disturbed area. The height of cut is estimated to be 2 to 5 feet. The length of this cut is estimated to be 700 feet.

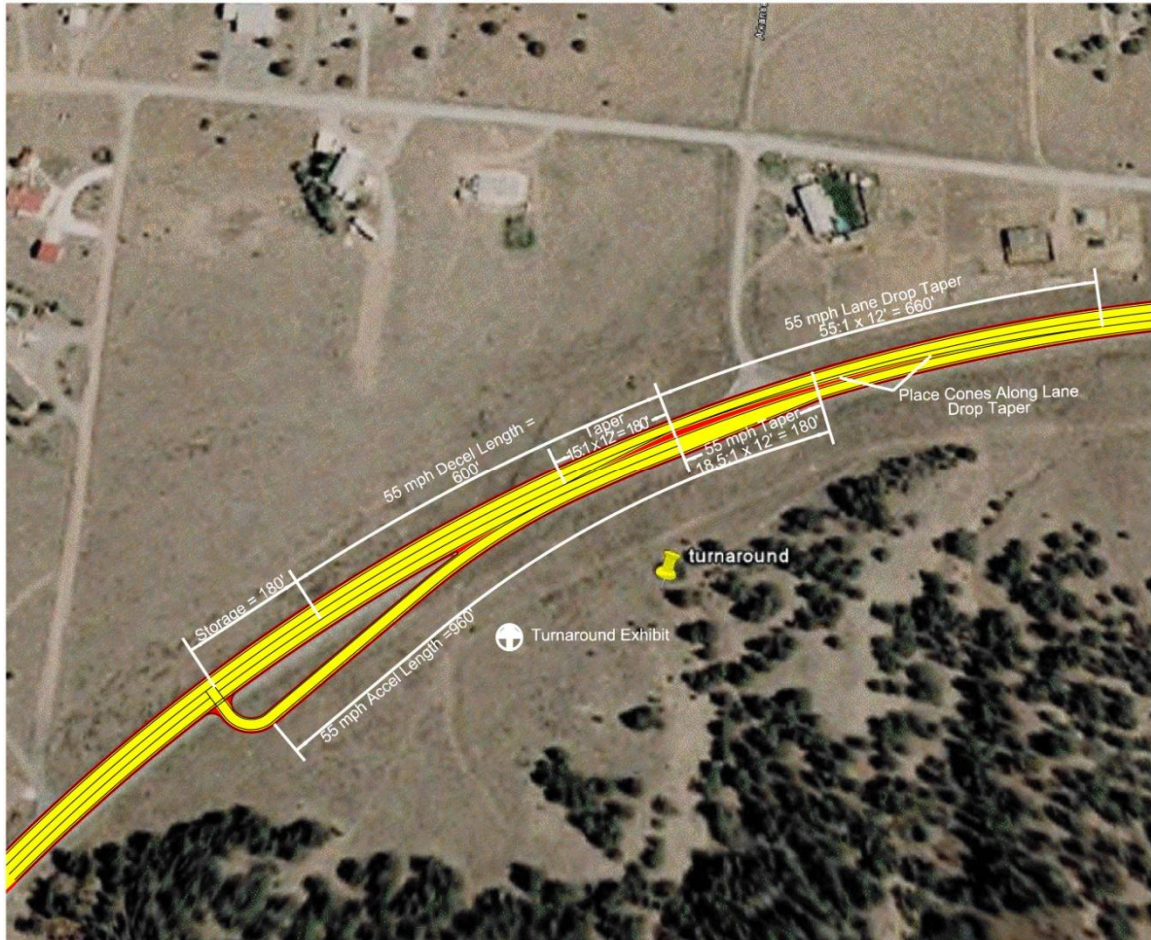
Drainage

Drainage along EB US 50 is another consideration that will need to be addressed. There is an existing minor roadside ditch (approximately 1 to 2-feet deep) along the south pavement edge of EB US 50. Runoff that currently is conveyed by the existing ditch will need to be captured and conveyed to existing cross culverts or to a new temporary cross culvert under US 50.



Appendix B - U-Turn Facility Concept Design

The turnaround has been designed to accommodate a bus. The design speed utilized for the design is 55 mph. The acceleration portion of the turnaround is designed using the AAHSTO design principles for a parallel type on ramp common to interchanges. The deceleration and acceleration lengths are based on the State Highway Access Code with the tapers included in these lengths. Existing pavement markings can remain and the lane drop taper can be developed using construction traffic cones.



Appendix C - Transportation and Traffic Calculations

Appendix C Transportation and Traffic Calculations

Background Traffic Volumes - Alternative 1A and 1C

WB	84			WBTH	80	88	WB
EB	85	84	EBTH	WBLT	8	89	EB
		1	EBRT				
8-9am							
			NBLT	NBRT			
			5	5			
			SB	NB			
			9	9			

WB	112			WBTH	106	116	WB
EB	108	107	EBTH	WBLT	10	113	EB
		2	EBRT				
9-10am							
			NBLT	NBRT			
			6	6			
			SB	NB			
			12	12			

WB	132			WBTH	125	137	WB
EB	123	121	EBTH	WBLT	12	128	EB
		2	EBRT				
10-11am							
			NBLT	NBRT			
			7	7			
			SB	NB			
			14	14			

WB	136			WBTH	129	142	WB
EB	126	124	EBTH	WBLT	13	131	EB
		2	EBRT				
11-12pm							
			NBLT	NBRT			
			7	7			
			SB	NB			
			14	14			

WB	138			WBTH	131	143	WB
EB	130	127	EBTH	WBLT	13	135	EB
		2	EBRT				
12-1pm							
			NBLT	NBRT			
			7	7			
			SB	NB			
			15	15			

WB	132			WBTH	124	137	WB
EB	141	139	EBTH	WBLT	13	147	EB
		2	EBRT				
1-2pm							
			NBLT	NBRT			
			8	8			
			SB	NB			
			15	15			

WB	132			WBTH	124	137	WB
EB	143	141	EBTH	WBLT	13	149	EB
		2	EBRT				
2-3pm							
			NBLT	NBRT			
			8	8			
			SB	NB			
			15	15			

WB	130			WBTH	122	135	WB
EB	144	143	EBTH	WBLT	13	150	EB
		2	EBRT				
3-4pm							
			NBLT	NBRT			
			8	8			
			SB	NB			
			15	15			

WB	127			WBTH	120	132	WB
EB	130	128	EBTH	WBLT	12	135	EB
		2	EBRT				
4-5pm							
			NBLT	NBRT			
			7	7			
			SB	NB			
			14	14			

WB	110			WBTH	104	115	WB
EB	115	113	EBTH	WBLT	11	119	EB
		2	EBRT				
5-6pm							
			NBLT	NBRT			
			6	6			
			SB	NB			
			12	12			

Weekend Visitation - Alternative 1A and 1C					
	EB	WB Total	WB US 50	WB SH 9	EB + WB
0	9	47	44	3	56
1	7	28	26	2	35
2	5	28	26	2	33
3	7	28	26	2	35
4	9	37	35	2	47
5	18	90	84	6	108
6	43	210	197	13	253
7	90	361	338	23	451
8	130	521	488	33	651
9	165	691	648	43	856
10	166	719	674	45	885
11	171	745	699	47	916
12	175	754	707	47	930
13	191	719	674	45	910
14	193	719	674	45	912
15	195	710	666	44	905
16	175	692	649	43	867
17	175	681	638	43	856
18	138	541	507	34	679
19	105	391	366	24	496
20	73	280	263	18	353
21	53	190	178	12	243
22	33	112	105	7	145
23	16	65	61	4	82

Background Traffic Volumes - Alternative 1D

WB	80			WBTH	75	82	WB
EB	70	68		EBTH	6	73	EB
		2		EBRT			
8-9am							
				NBLT	NBRT		
				4	4		
				SB	NB		
				9	9		

WB	107			WBTH	101	109	WB
EB	98	96		EBTH	8	101	EB
		2		EBRT			
9-10am							
				NBLT	NBRT		
				6	6		
				SB	NB		
				11	11		

WB	123			WBTH	116	126	WB
EB	115	113		EBTH	9	119	EB
		2		EBRT			
10-11am							
				NBLT	NBRT		
				7	7		
				SB	NB		
				13	13		

WB	129			WBTH	122	131	WB
EB	117	115		EBTH	10	121	EB
		2		EBRT			
11-12pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				13	13		

WB	126			WBTH	119	129	WB
EB	121	119		EBTH	10	126	EB
		2		EBRT			
12-1pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	120			WBTH	113	123	WB
EB	132	130		EBTH	10	137	EB
		2		EBRT			
1-2pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	121			WBTH	114	124	WB
EB	135	133		EBTH	10	141	EB
		2		EBRT			
2-3pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	122			WBTH	115	124	WB
EB	139	137		EBTH	10	144	EB
		2		EBRT			
3-4pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	118			WBTH	112	121	WB
EB	128	126		EBTH	9	133	EB
		2		EBRT			
4-5pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				13	13		

WB	104			WBTH	98	106	WB
EB	111	109		EBTH	8	115	EB
		2		EBRT			
5-6pm							
				NBLT	NBRT		
				6	6		
				SB	NB		
				12	12		

	Weekend Visitation - Alternative 1D				
	EB	WB Total	WB US 50	WB SH 9	EB + WB
0	6	43	41	3	50
1	4	25	23	2	29
2	4	21	20	1	25
3	4	25	23	2	29
4	7	39	37	2	46
5	14	86	81	5	100
6	28	162	152	10	190
7	53	270	253	17	323
8	88	389	365	24	476
9	122	520	487	32	642
10	126	533	499	33	659
11	129	557	522	35	685
12	133	547	513	34	680
13	145	520	488	33	665
14	149	526	493	33	675
15	153	526	493	33	679
16	140	511	479	32	652
17	138	507	475	32	645
18	109	406	381	25	515
19	79	300	281	19	379
20	55	215	201	13	270
21	35	142	133	9	177
22	23	89	83	6	111
23	12	58	54	4	70

Background Traffic Volumes - Alternative 2

WB	86			WBTH	82	87	WB
EB	83	81		EBTH	6	86	EB
		2		EBRT			
8-9am							
				NBLT	NBRT		
				5	5		
				SB	NB		
				10	10		

WB	116			WBTH	110	117	WB
EB	107	105		EBTH	7	111	EB
		2		EBRT			
9-10am							
				NBLT	NBRT		
				6	6		
				SB	NB		
				12	12		

WB	140			WBTH	133	141	WB
EB	123	121		EBTH	9	128	EB
		3		EBRT			
10-11am							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	147			WBTH	140	148	WB
EB	129	126		EBTH	9	134	EB
		2		EBRT			
11-12pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				15	15		

WB	144			WBTH	136	145	WB
EB	126	123		EBTH	9	131	EB
		3		EBRT			
12-1pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				15	15		

WB	138			WBTH	131	140	WB
EB	138	136		EBTH	9	144	EB
		2		EBRT			
1-2pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				16	16		

WB	139			WBTH	132	141	WB
EB	145	143		EBTH	9	151	EB
		2		EBRT			
2-3pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				16	16		

WB	138			WBTH	130	139	WB
EB	143	141		EBTH	9	149	EB
		2		EBRT			
3-4pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				16	16		

WB	131			WBTH	123	132	WB
EB	132	130		EBTH	8	137	EB
		2		EBRT			
4-5pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	114			WBTH	108	115	WB
EB	118	116		EBTH	7	123	EB
		2		EBRT			
5-6pm							
				NBLT	NBRT		
				6	6		
				SB	NB		
				13	13		

Weekend Visitation - Alternative 2					
	EB	WB Total	WB US 50	WB SH 9	EB + WB
0	10	47	44	3	57
1	6	30	28	2	36
2	6	26	24	2	32
3	7	25	23	2	31
4	8	41	38	3	48
5	18	94	88	6	113
6	44	215	202	13	260
7	92	365	343	23	458
8	132	536	503	34	668
9	170	720	675	45	890
10	174	768	720	48	942
11	181	806	756	50	988
12	178	787	738	49	965
13	195	758	711	47	953
14	205	764	717	48	969
15	202	754	707	47	956
16	186	716	671	45	902
17	188	707	662	44	894
18	146	554	519	35	700
19	110	410	384	26	520
20	79	293	275	18	372
21	55	202	189	13	256
22	38	117	110	7	155
23	20	67	63	4	87

Background Traffic Volumes - Alternative 3

WB	84			WBTH	80	88	WB
EB	85	84		EBTH	8	89	EB
		1		EBRT			
8-9am							
				NBLT	NBRT		
				5	5		
				SB	NB		
				9	9		

WB	112			WBTH	106	116	WB
EB	108	107		EBTH	10	113	EB
		2		EBRT			
9-10am							
				NBLT	NBRT		
				6	6		
				SB	NB		
				12	12		

WB	132			WBTH	125	137	WB
EB	123	121		EBTH	12	128	EB
		2		EBRT			
10-11am							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	136			WBTH	129	142	WB
EB	126	124		EBTH	13	131	EB
		2		EBRT			
11-12pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	138			WBTH	131	143	WB
EB	130	127		EBTH	13	135	EB
		2		EBRT			
12-1pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				15	15		

WB	132			WBTH	124	137	WB
EB	141	139		EBTH	13	147	EB
		2		EBRT			
1-2pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				15	15		

WB	132			WBTH	124	137	WB
EB	143	141		EBTH	13	149	EB
		2		EBRT			
2-3pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				15	15		

WB	130			WBTH	122	135	WB
EB	144	143		EBTH	13	150	EB
		2		EBRT			
3-4pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				15	15		

WB	127			WBTH	120	132	WB
EB	130	128		EBTH	12	135	EB
		2		EBRT			
4-5pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	110			WBTH	104	115	WB
EB	115	113		EBTH	11	119	EB
		2		EBRT			
5-6pm							
				NBLT	NBRT		
				6	6		
				SB	NB		
				12	12		

	Weekend Visitation - Alternative 3				
	EB	WB Total	WB US 50	WB SH 9	EB + WB
0	9	43	41	3	52
1	7	26	24	2	33
2	4	26	24	2	30
3	7	26	24	2	33
4	9	35	33	2	43
5	16	84	79	5	100
6	40	196	183	12	235
7	84	335	314	21	419
8	121	484	454	30	606
9	154	643	603	40	797
10	155	669	627	42	823
11	159	693	650	43	852
12	163	702	658	44	865
13	177	669	627	42	846
14	180	669	627	42	848
15	182	660	619	41	842
16	163	644	604	40	807
17	163	633	594	40	797
18	128	503	472	31	631
19	98	363	341	23	461
20	68	261	245	16	328
21	49	177	166	11	226
22	30	104	98	7	135
23	15	61	57	4	76

Background Traffic Volumes - Alternative 4

WB	84			WBTH	80	88	WB
EB	85	84		EBTH	8	89	EB
		1		EBRT			
8-9am							
				NBLT	NBRT		
				5	5		
				SB	NB		
				9	9		

WB	112			WBTH	106	116	WB
EB	108	107		EBTH	10	113	EB
		2		EBRT			
9-10am							
				NBLT	NBRT		
				6	6		
				SB	NB		
				12	12		

WB	132			WBTH	125	137	WB
EB	123	121		EBTH	12	128	EB
		2		EBRT			
10-11am							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	136			WBTH	129	142	WB
EB	126	124		EBTH	13	131	EB
		2		EBRT			
11-12pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	138			WBTH	131	143	WB
EB	130	127		EBTH	13	135	EB
		2		EBRT			
12-1pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				15	15		

WB	132			WBTH	124	137	WB
EB	141	139		EBTH	13	147	EB
		2		EBRT			
1-2pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				15	15		

WB	132			WBTH	124	137	WB
EB	143	141		EBTH	13	149	EB
		2		EBRT			
2-3pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				15	15		

WB	130			WBTH	122	135	WB
EB	144	143		EBTH	13	150	EB
		2		EBRT			
3-4pm							
				NBLT	NBRT		
				8	8		
				SB	NB		
				15	15		

WB	127			WBTH	120	132	WB
EB	130	128		EBTH	12	135	EB
		2		EBRT			
4-5pm							
				NBLT	NBRT		
				7	7		
				SB	NB		
				14	14		

WB	110			WBTH	104	115	WB
EB	115	113		EBTH	11	119	EB
		2		EBRT			
5-6pm							
				NBLT	NBRT		
				6	6		
				SB	NB		
				12	12		

	Weekend Visitation - Alternative 4				
	EB	WB Total	WB US 50	WB SH 9	EB + WB
0	4	20	18	1	24
1	3	12	11	1	15
2	2	12	11	1	14
3	3	12	11	1	15
4	4	16	15	1	20
5	7	38	36	2	45
6	18	89	83	6	107
7	38	152	142	9	190
8	55	220	206	14	274
9	70	291	273	18	361
10	70	303	284	19	373
11	72	314	295	20	386
12	74	318	298	20	392
13	80	303	284	19	383
14	81	303	284	19	384
15	82	299	281	19	382
16	74	292	274	18	366
17	74	287	269	18	361
18	58	228	214	14	286
19	44	165	154	10	209
20	31	118	111	7	149
21	22	80	75	5	102
22	14	47	44	3	61
23	7	28	26	2	34

Vehicle Occupancy Calculations - Alternative 1A

344000

In-State			Occupancy	Visitors	Vehicles
164069	PC	55%	2	155135	77567
15983	PC	30%	4	84619	21155
67152	van	10%	9	28206	3134
17130	bus	5%	30	14103	470
17729				282063	102326
282063			total occupancy	2.8	

2.4

	Average Occupancy	Percent by Mode	Visitors by Mode	Vehicles by Mode
PC	2.6	82.9%	285128	111570
Van	9.0	12.1%	41464	4607
Bus	30.0	5.1%	17408	580
Overall	2.9	100.0%	344000	116758

445000

Out-of-State	Drive	Fly
38202	28652	9551
51643	38732	12911
89845	67384	22461

	Average Occupancy	Percent by Mode	Visitors by Mode	Vehicles by Mode
PC	2.6	82.9%	368844	144328
Van	9.0	12.1%	53638	5960
Bus	30.0	5.1%	22519	751
Overall	2.9	100.0%	445000	151038

Out-of-State Drivers

		Occupancy	Visitors	Vehicles
PC	20%	2	13477	6738
PC	65%	4	43799	10950
van	12%	9	8086	898
bus	3%	30	2022	67
			67384	18654
		total occupancy	3.6	

3.2

Out-of-State Flyers

		Occupancy	Visitors	Vehicles
PC	25%	2	5615	2808
PC	25%	4	5615	1404
van	38%	9	8535	948
bus	12%	30	2695	90
			22461	5250
		total occupancy	4.3	

2.7

Vehicle Occupancy Calculations - Alternative 1D

224000

In-State			Occupancy	Visitors	Vehicles
200888	PC	55%	2	110488	55244
	PC	30%	4	60266	15067
	van	10%	9	20089	2232
	bus	5%	30	10044	335
				200888	72878
			total occupancy	2.8	

2.4

	Average	Percent	Visitors	Vehicles
	Occupancy	by Mode	by Mode	by Mode
PC	2.6	82.9%	185665	72650
Van	9.0	12.1%	27000	3000
Bus	30.0	5.1%	11335	378
Overall	2.9	100.0%	224000	76028

Out-of-State	Drive	Fly
63988	47991	15997

Out-of-State

<u>Drivers</u>		Occupancy	Visitors	Vehicles
PC	20%	2	9598	4799
PC	65%	4	31194	7799
van	12%	9	5759	640
bus	3%	30	1440	48
			47991	13286
			total occupancy	3.6

3.2

Out-of-State

<u>Flyers</u>		Occupancy	Visitors	Vehicles
PC	25%	2	3999	2000
PC	25%	4	3999	1000
van	38%	9	6079	675
bus	12%	30	1920	64
			15997	3739
			total occupancy	4.3

2.7

Vehicle Occupancy Calculations - Alternative 2

361000

In-State			Occupancy	Visitors	Vehicles
296002	PC	55%	2	162801	81401
	PC	30%	4	88801	22200
	van	10%	9	29600	3289
	bus	5%	30	14800	493
				296002.2	107383
			total occupancy		2.8

2.4

	Average Occupancy	Percent by Mode	Visitors by Mode	Vehicles by Mode
PC	2.6	82.9%	299219	117084
Van	9.0	12.1%	43513	4835
Bus	30.0	5.1%	18268	609
Overall	2.9	100.0%	361000	122528

Out-of-State	Drive	Fly
94285	70714	23571

Out-of-State

<u>Drivers</u>		Occupancy	Visitors	Vehicles
PC	20%	2	14143	7071
PC	65%	4	45964	11491
van	12%	9	8486	943
bus	3%	30	2121	71
			70714	19576
		total occupancy		3.6

3.2

Out-of-State

<u>Flyers</u>		Occupancy	Visitors	Vehicles
PC	25%	2	5893	2946
PC	25%	4	5893	1473
van	38%	9	8957	995
bus	12%	30	2829	94
			23571	5509
		total occupancy		4.3

2.7

Vehicle Occupancy Calculations - Alternative 3

320000

In-State			Occupancy	Visitors	Vehicles
262384	PC	55%	2	144311	72156
	PC	30%	4	78715	19679
	van	10%	9	26238	2915
	bus	5%	30	13119	437
				262384	95187
			total occupancy	2.8	

2.4

	Average Occupancy	Percent by Mode	Visitors by Mode	Vehicles by Mode
PC	2.6	82.9%	265236	103786
Van	9.0	12.1%	38571	4286
Bus	30.0	5.1%	16193	540
Overall	2.9	100.0%	320000	108612

Out-of-State	Drive	Fly
83577	62683	20894

Out-of-State Drivers

		Occupancy	Visitors	Vehicles
PC	20%	2	12537	6268
PC	65%	4	40744	10186
van	12%	9	7522	836
bus	3%	30	1880	63
			62683	17353
			total occupancy	3.6

3.2

Out-of-State Flyers

		Occupancy	Visitors	Vehicles
PC	25%	2	5224	2612
PC	25%	4	5224	1306
van	38%	9	7940	882
bus	12%	30	2507	84
			20894	4883
			total occupancy	4.3

2.7

Vehicle Occupancy Calculations - Alternative 4

145000

In-State			Occupancy	Visitors	Vehicles
118893	PC	55%	2	65391	32696
	PC	30%	4	35668	8917
	van	10%	9	11889	1321
	bus	5%	30	5945	198
				118892.8	43132
			total occupancy	2.8	

2.4

	Average Occupancy	Percent by Mode	Visitors by Mode	Vehicles by Mode
PC	2.6	82.9%	120185	47028
Van	9.0	12.1%	17477	1942
Bus	30.0	5.1%	7338	245
Overall	2.9	100.0%	145000	49215

Out-of-State	Drive	Fly
37871	28403	9468

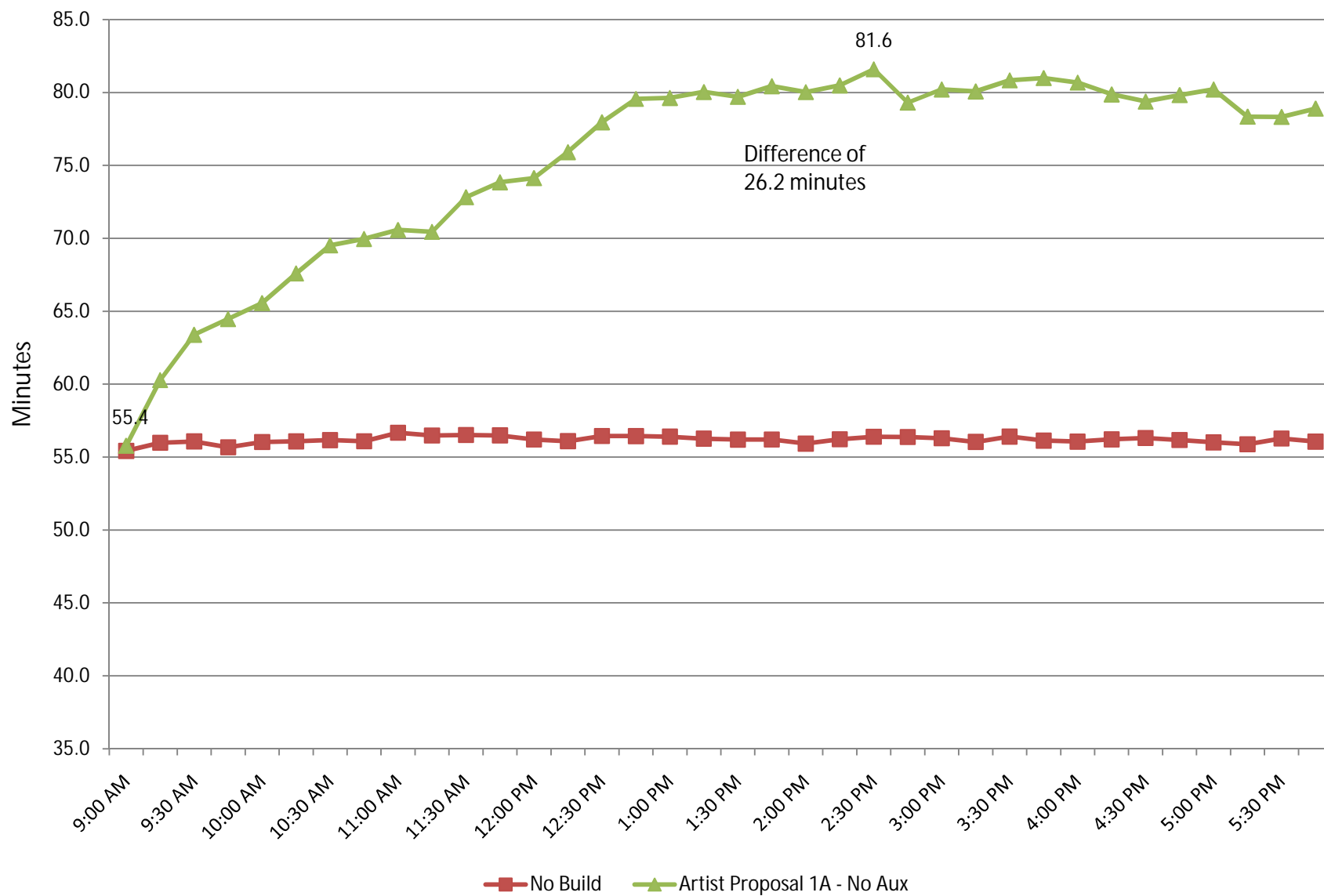
Out-of-State Drivers		Occupancy	Visitors	Vehicles
PC	20%	2	5681	2840
PC	65%	4	18462	4615
van	12%	9	3408	379
bus	3%	30	852	28
			28403	7863
			total occupancy	3.6

3.2

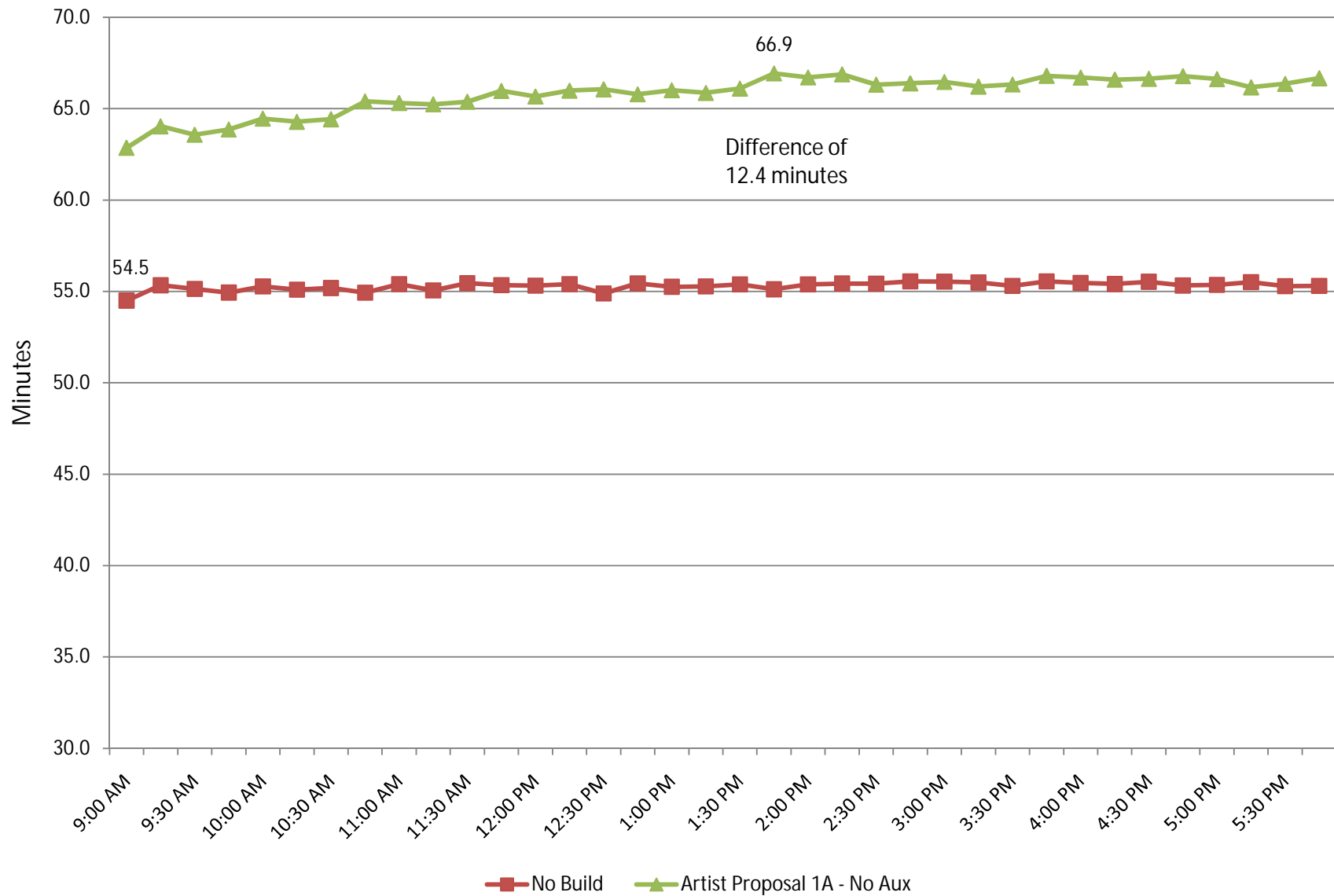
Out-of-State Flyers		Occupancy	Visitors	Vehicles
PC	25%	2	2367	1183
PC	25%	4	2367	592
van	38%	9	3598	400
bus	12%	30	1136	38
			9468	2213
			total occupancy	4.3

2.7

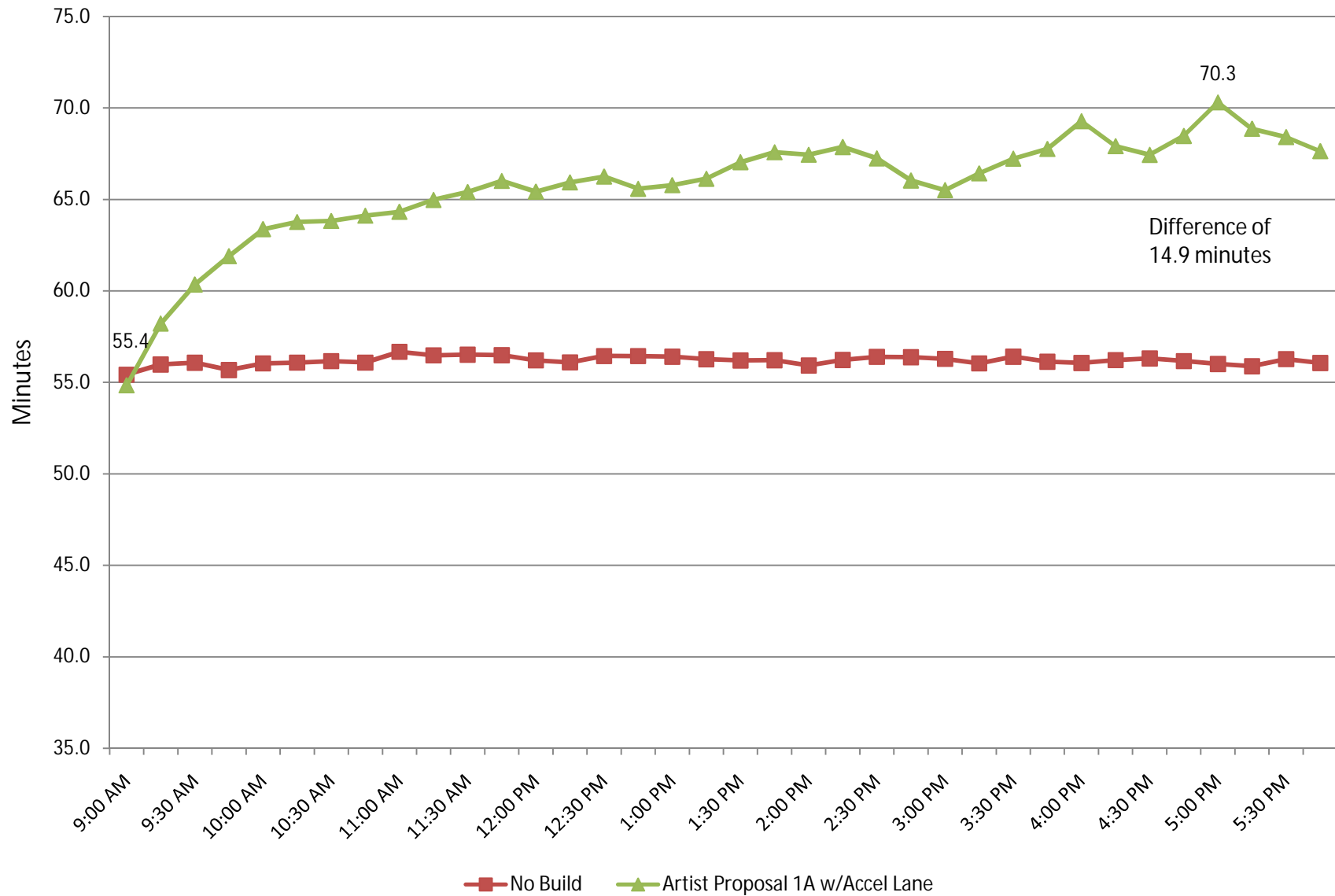
Westbound Travel Time - Alt 1A - No Auxiliary Lanes (from CR 3A to County Line Panel Section)



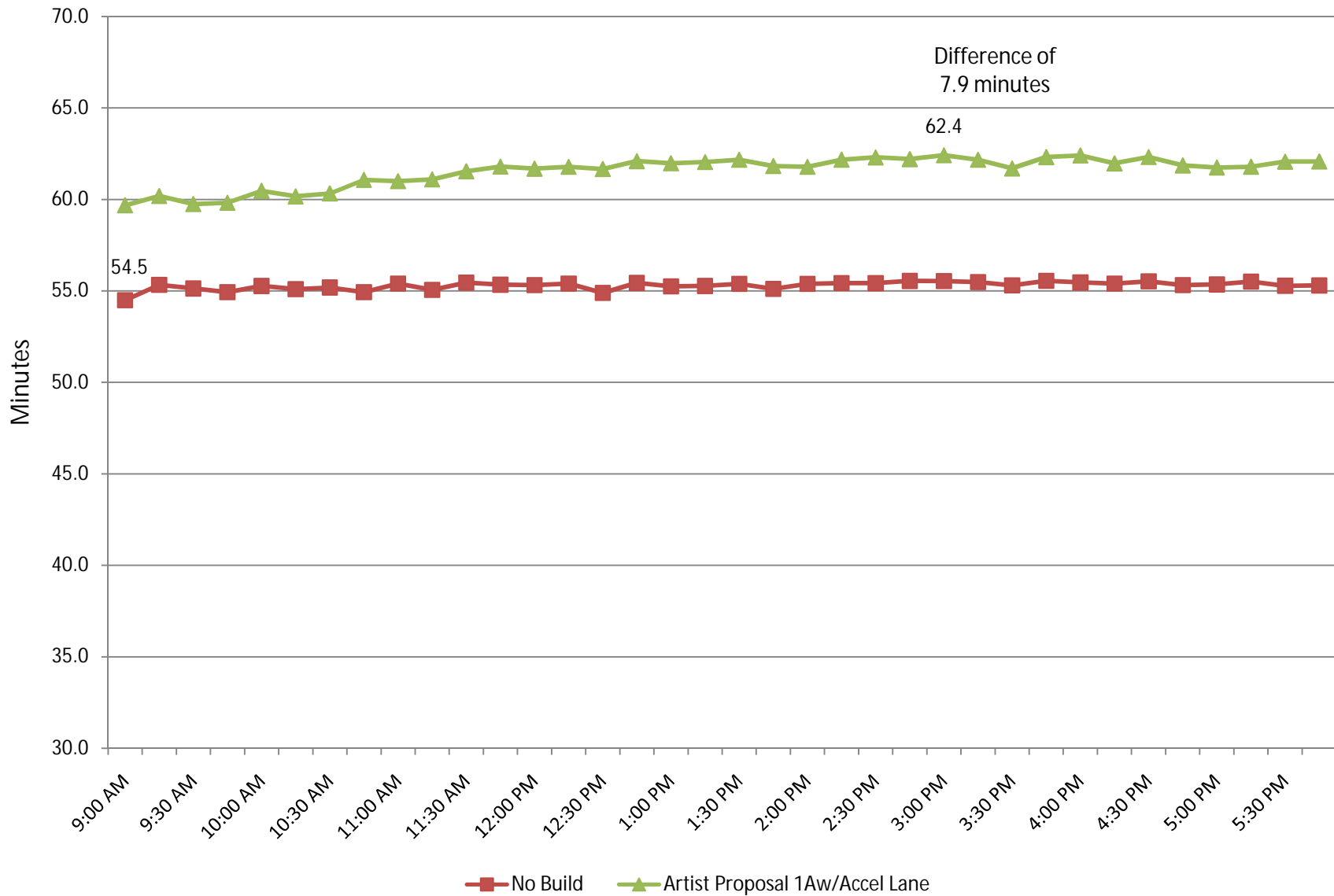
Eastbound Travel Time - Alt 1A - No Auxiliary Lanes (from County Line Panel Section to CR 3A)



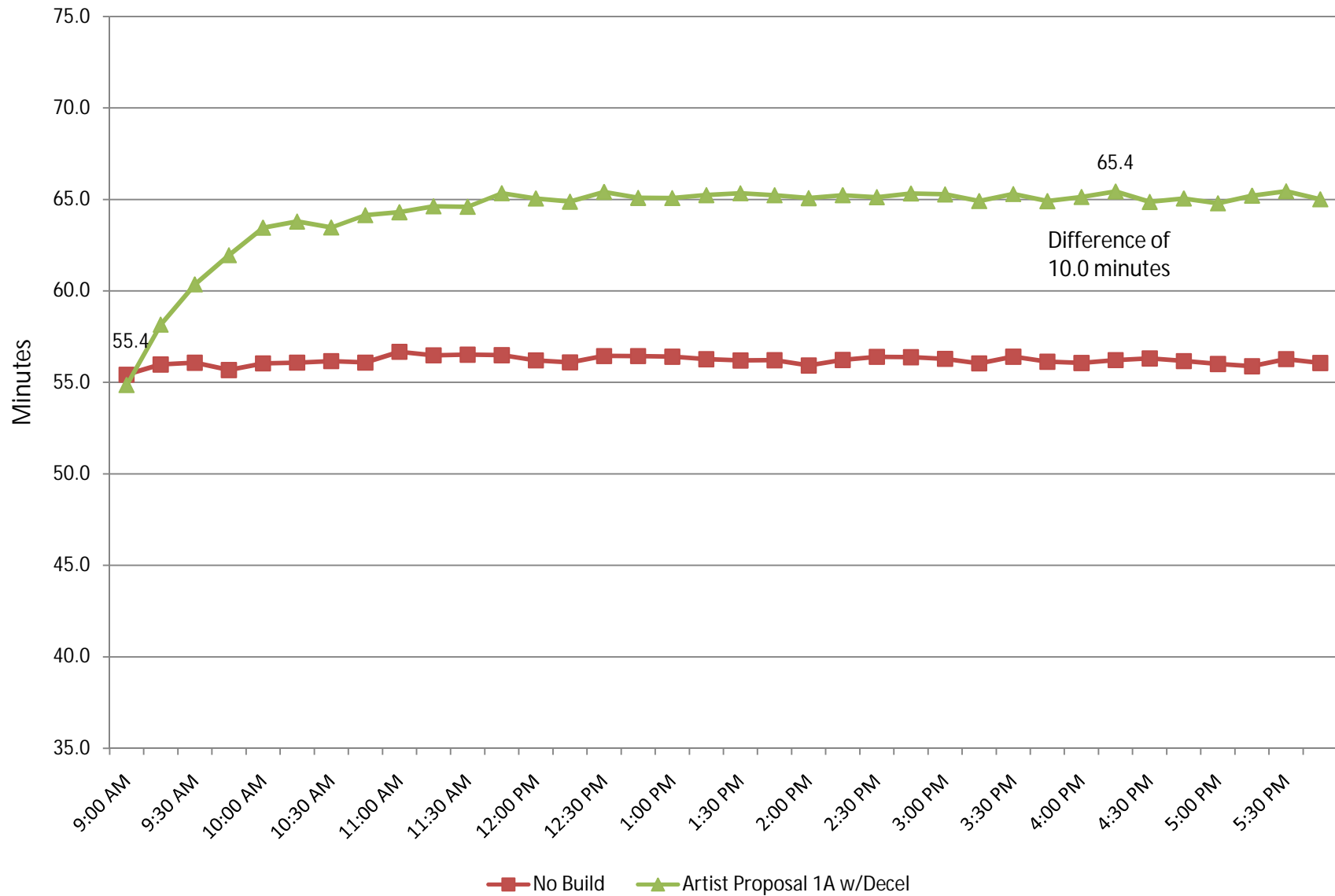
Westbound Travel Time - Alt 1A with Acceleration Lane (from CR 3A to County Line Panel Section)



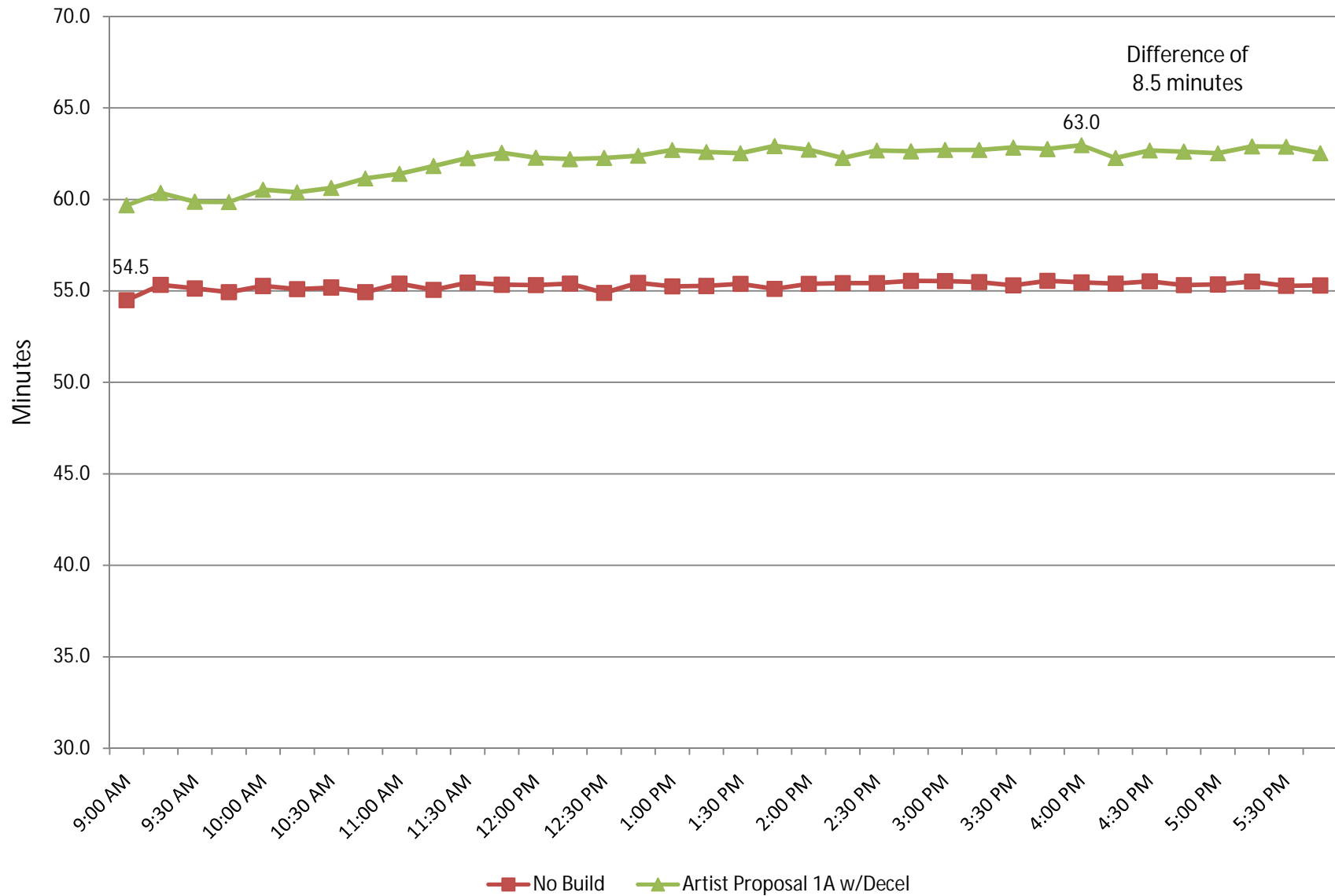
Eastbound Travel Time - Alt 1A with Acceleration Lane (from County Line Panel Section to CR 3A)



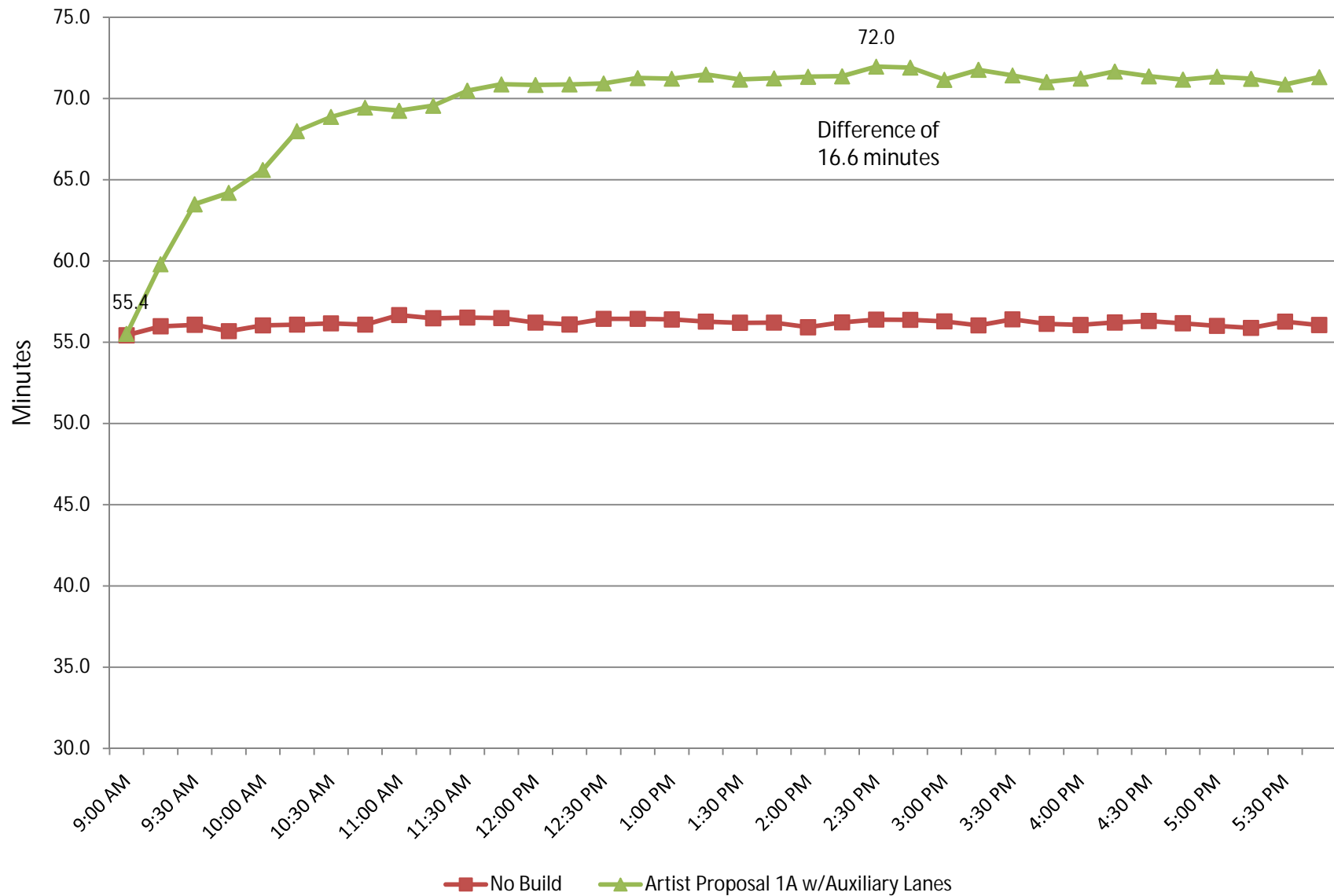
Westbound Travel Time - Alt 1A with Deceleration Lane (from CR 3A to County Line Panel Section)



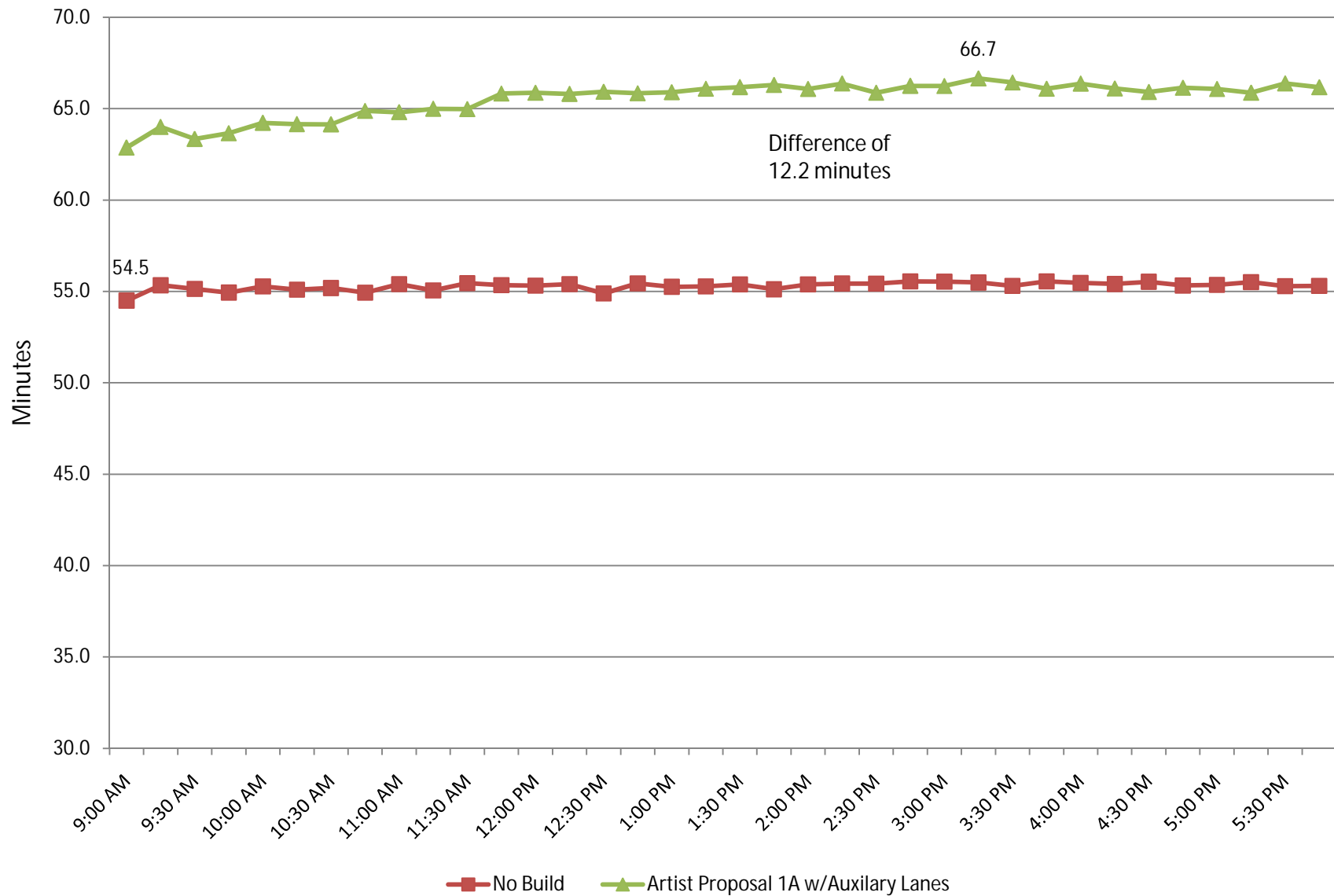
Eastbound Travel Time - Alt 1A with Acceleration Lane (from County Line Panel Section to CR 3A)



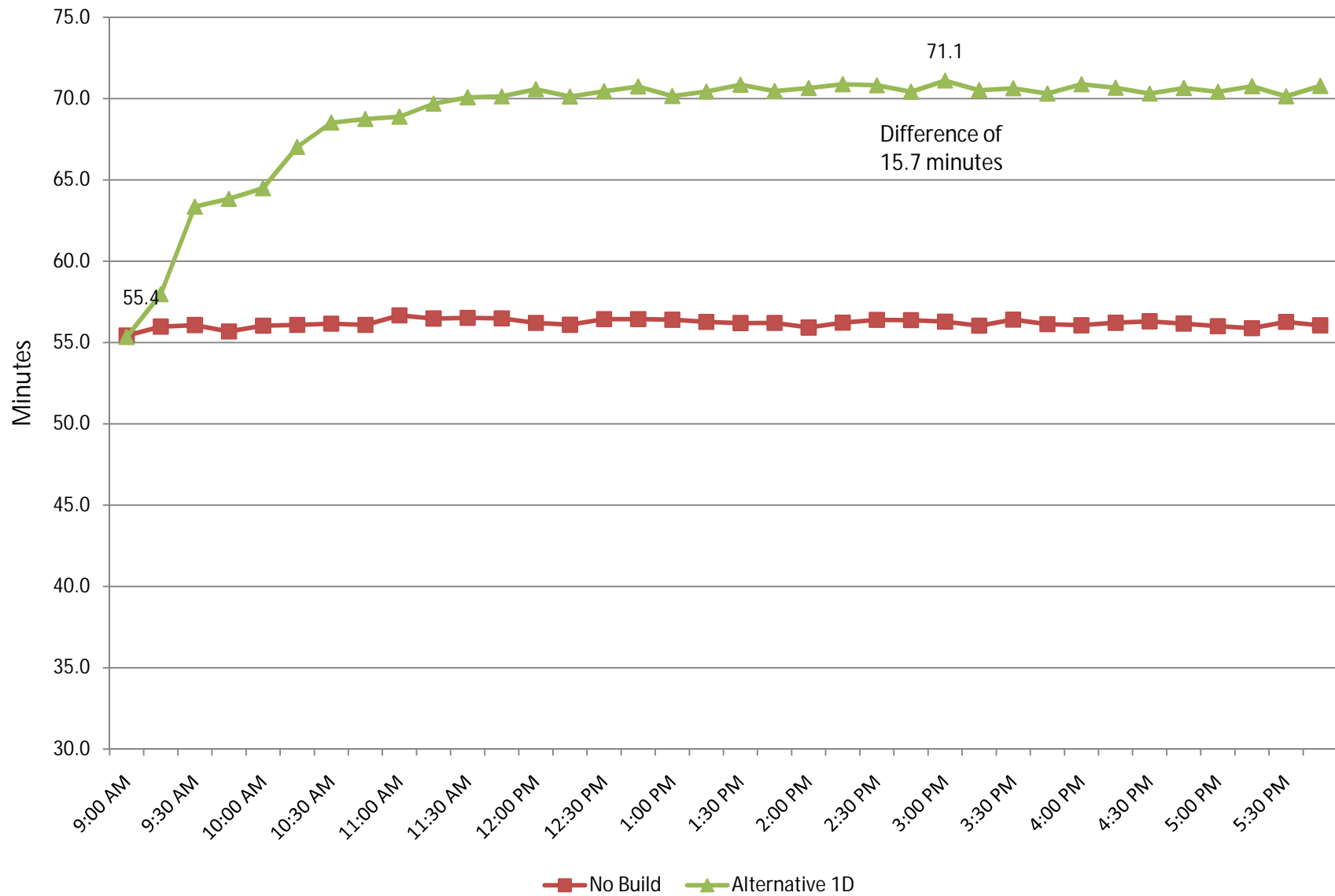
Westbound Travel Time - Alt 1A with Auxiliary Lanes (from CR 3A to County Line Panel Section)



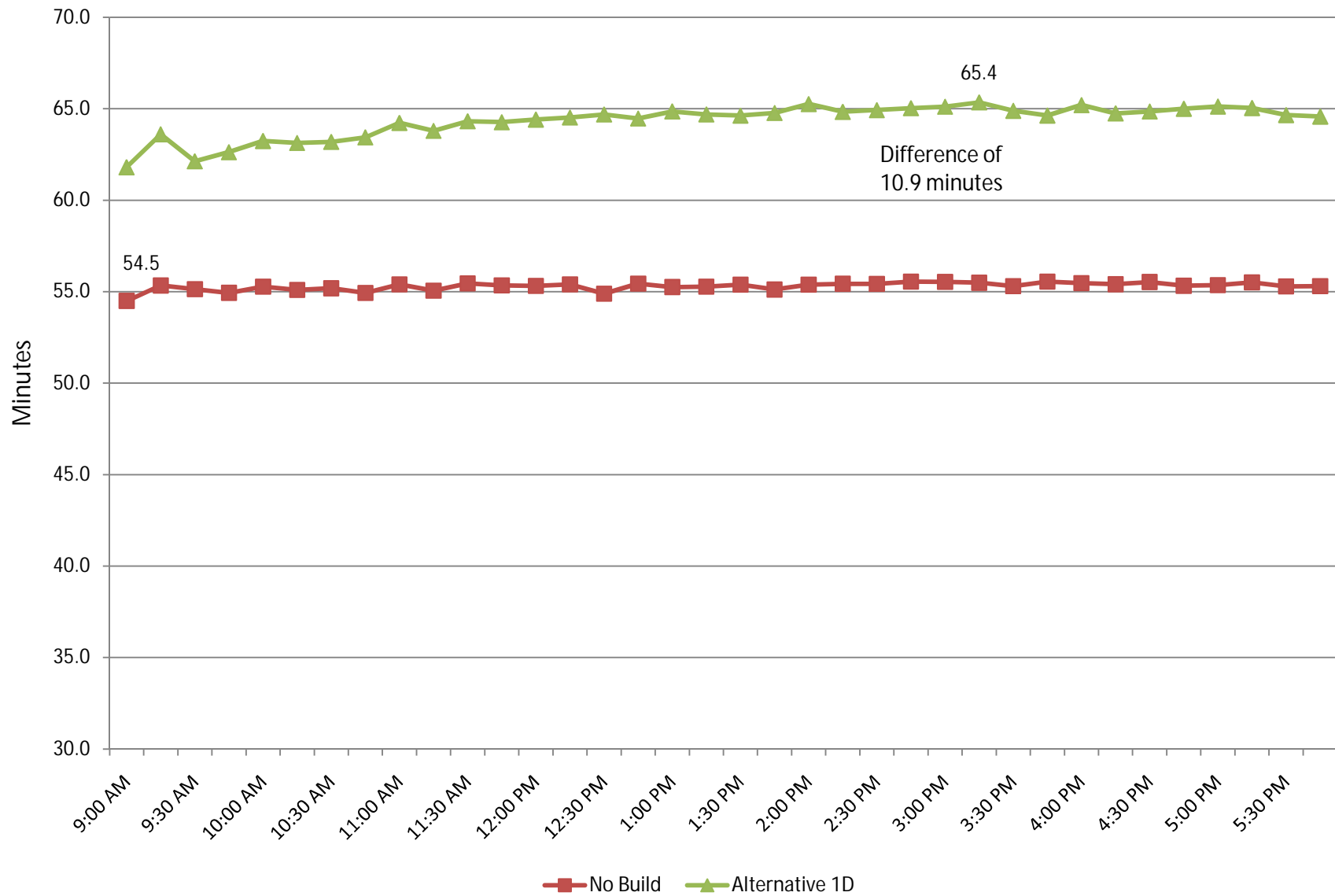
Eastbound Travel Time - Alt 1A with Auxiliary Lanes (from County Line Panel Section to CR 3A)



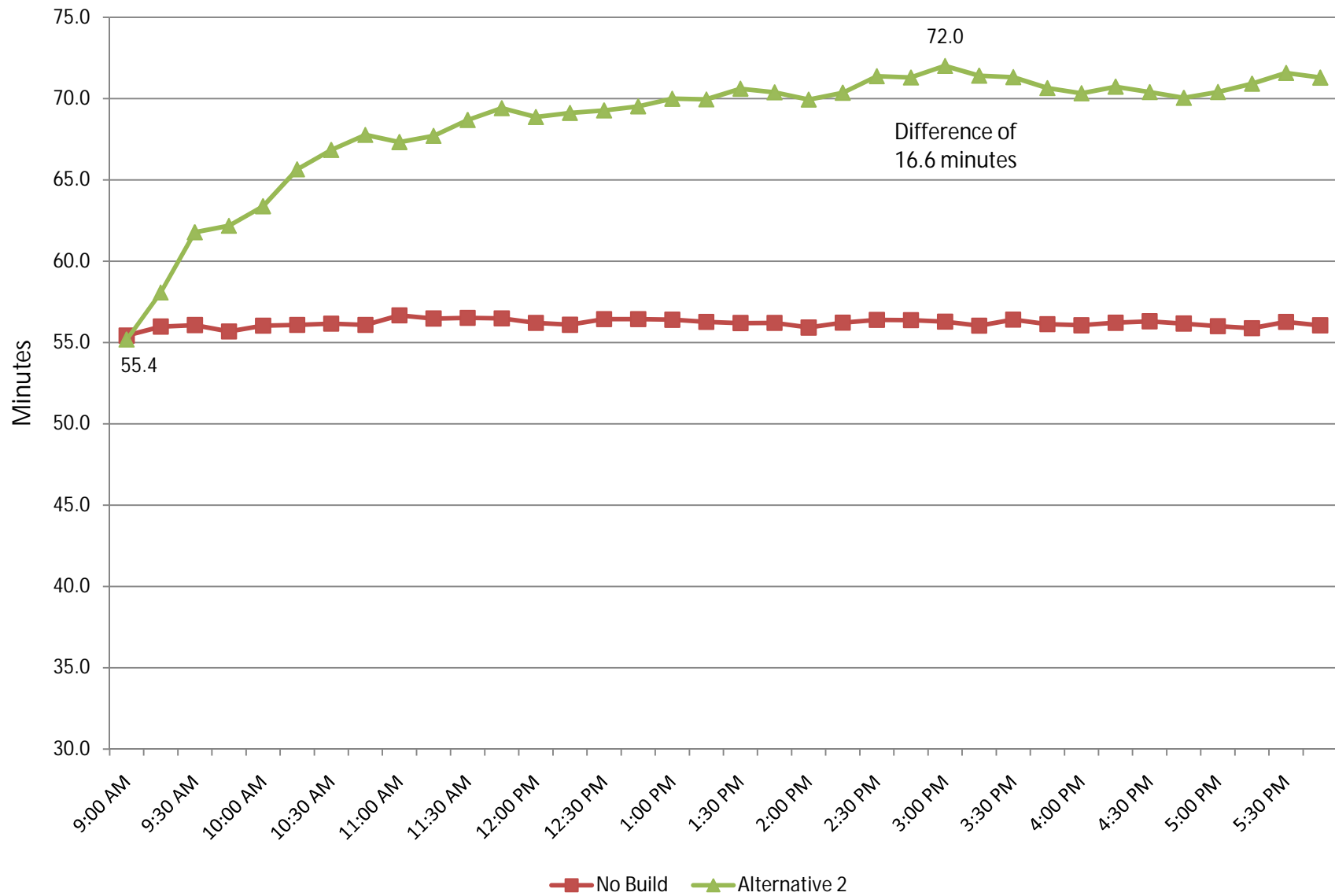
Westbound Travel Time - Alt 1D (from CR 3A to County Line Panel Section)



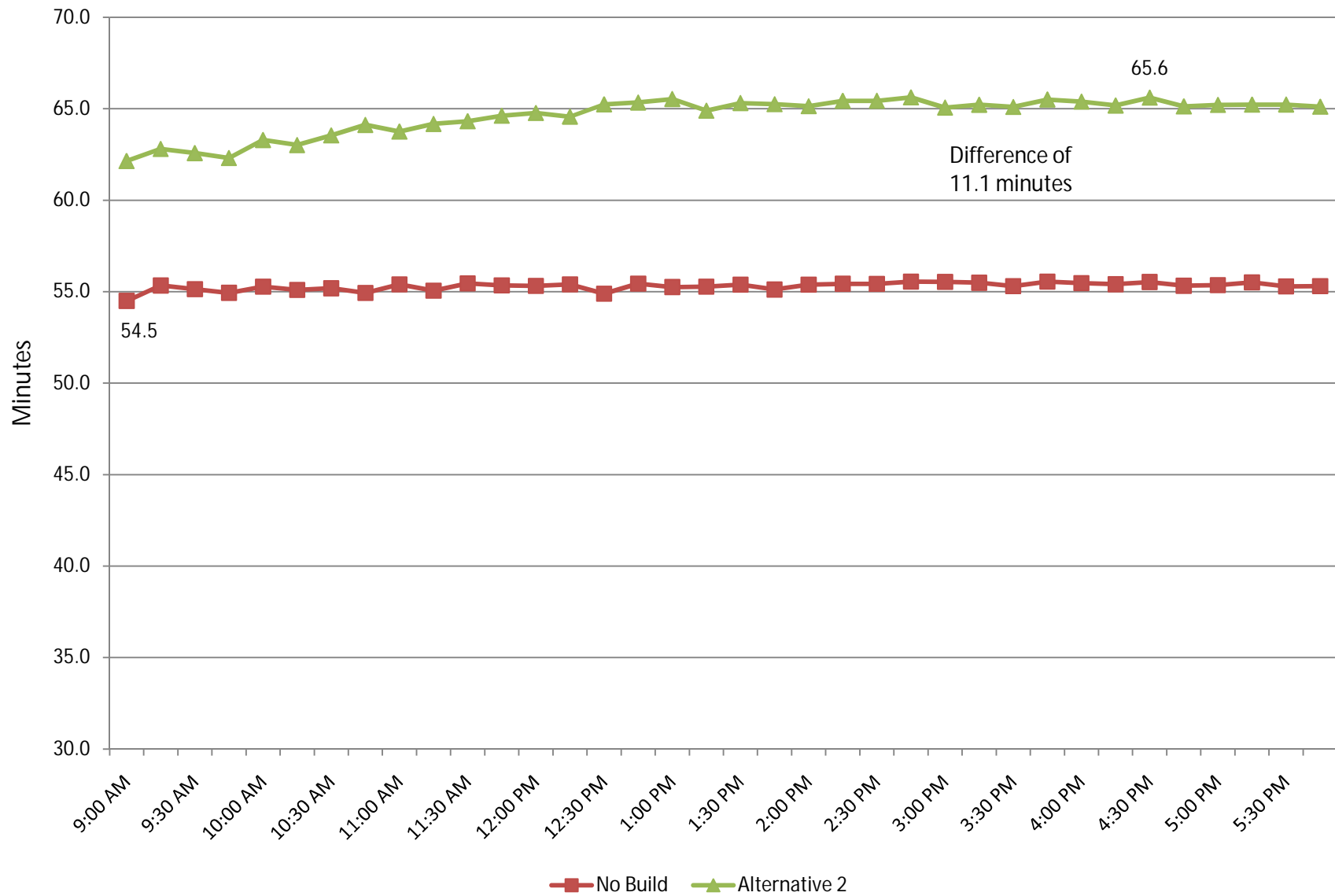
Eastbound Travel Time - 1D (from County Line Panel Section to CR 3A)



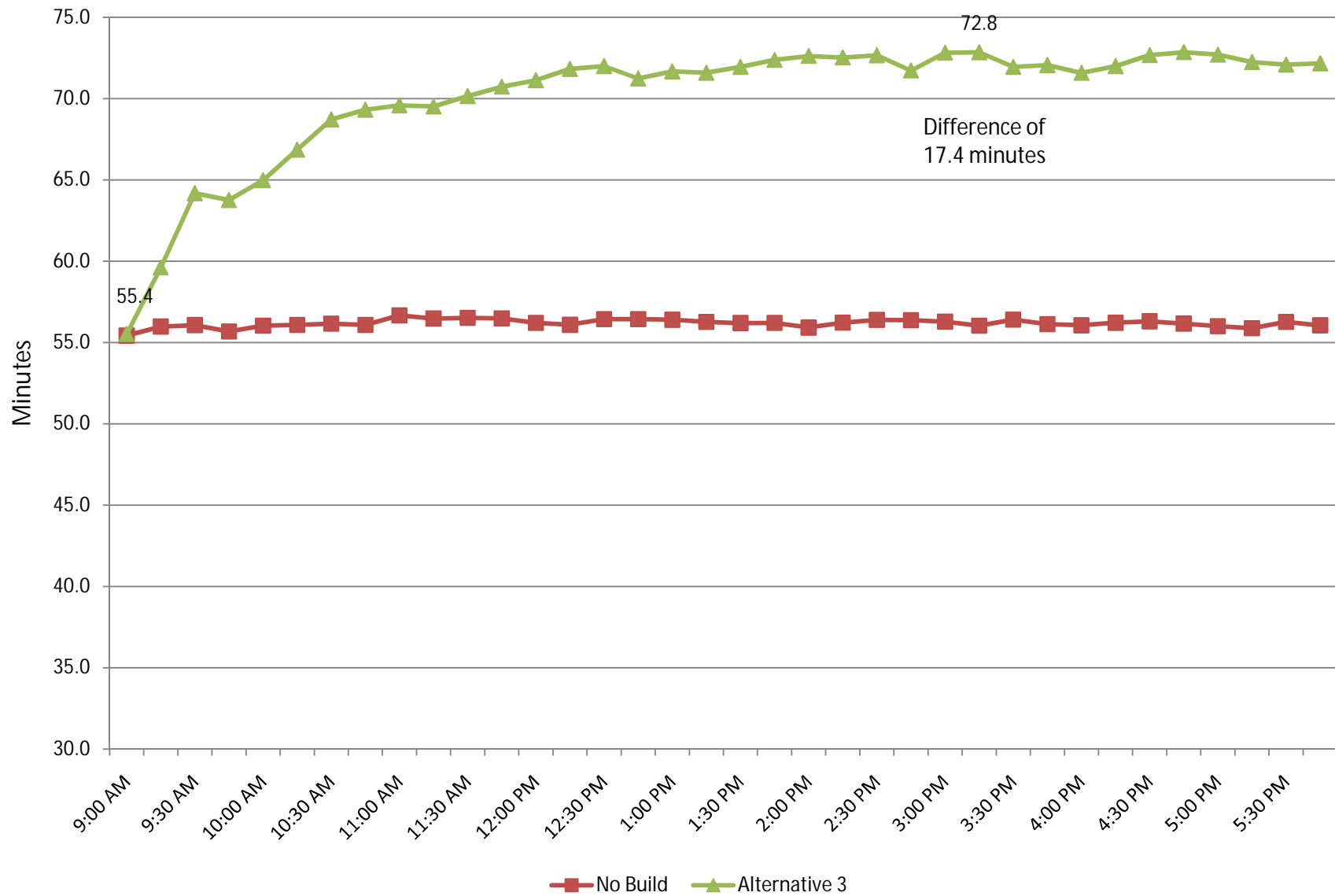
Westbound Travel Time - Alt 2 (from CR 3A to County Line Panel Section)



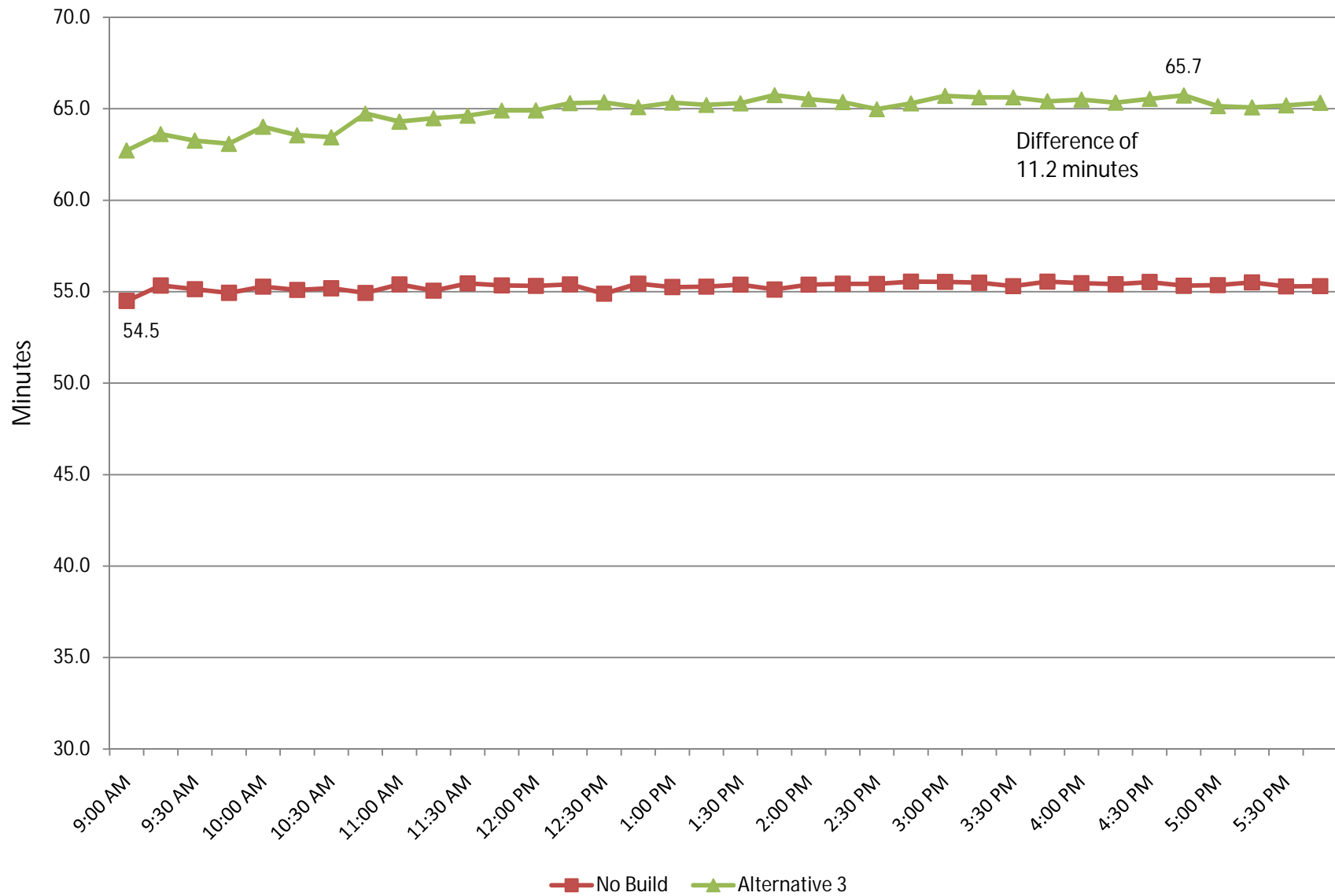
Eastbound Travel Time - Alt 2 (from County Line Panel Section to CR 3A)



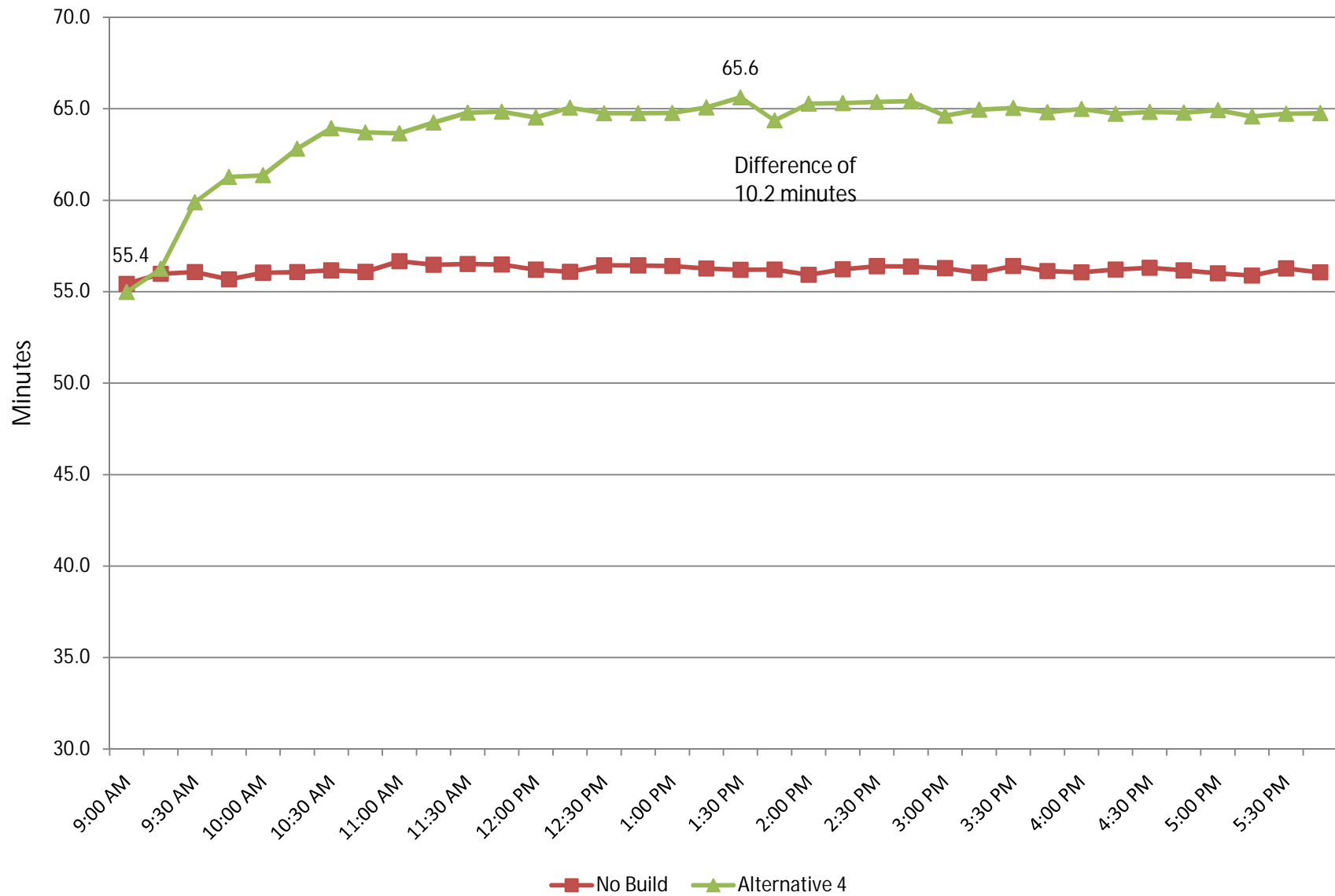
Westbound Travel Time - Alt 3 (from CR 3A to County Line Panel Section)



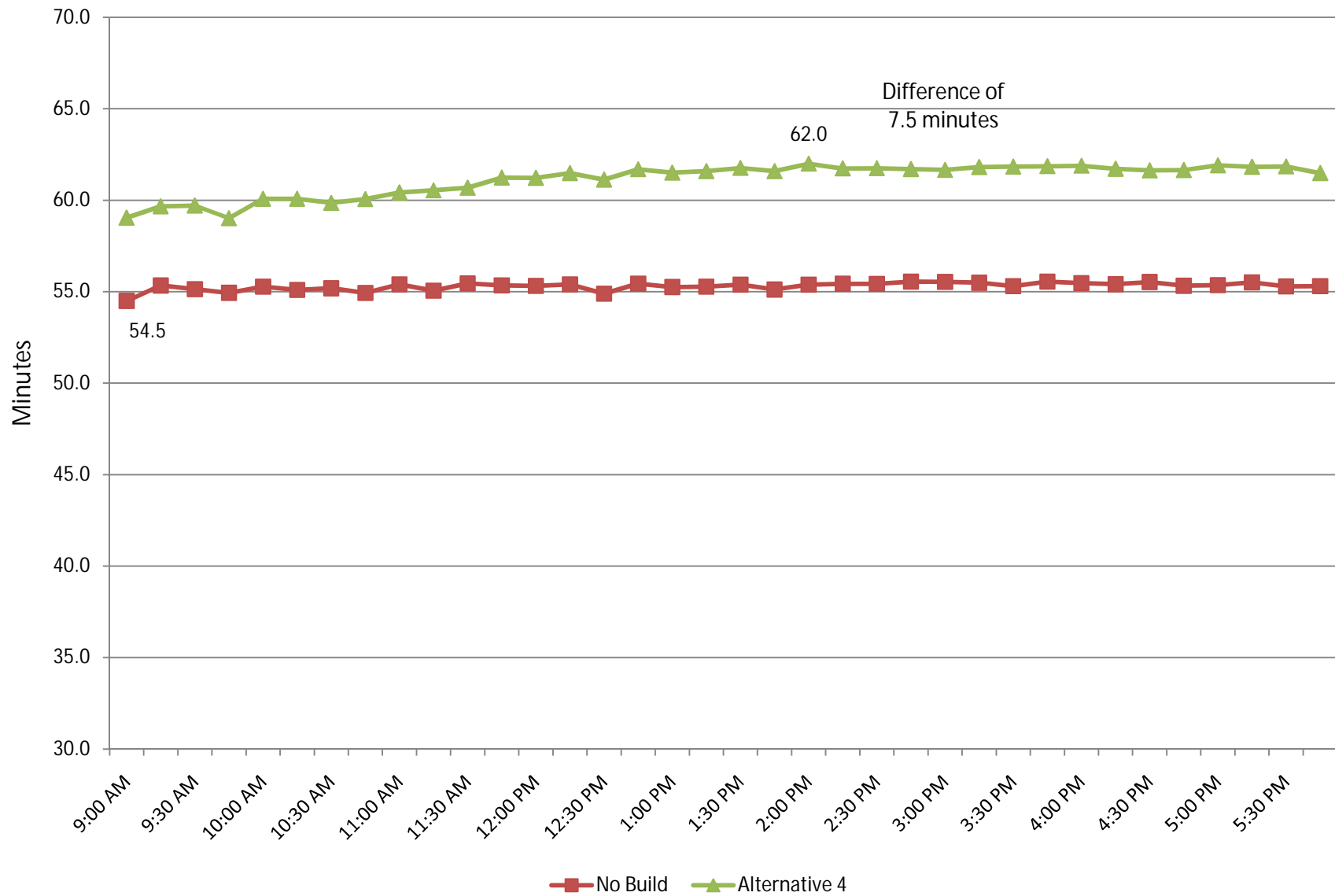
Eastbound Travel Time - Alt 3 (from County Line Panel Section to CR 3A)



Westbound Travel Time - Alt 4 (from CR 3A to County Line Panel Section)



Eastbound Travel Time - Alt 4 (from County Line Panel Section to CR 3A)



95% Queue Length (ft) by Alternative							
Alternative	WB @ Parkdale Lot	EB @ Parkdale Lot	WBRT @ Fremont Lot	EBLT @ Fremont Lot	WB @ Texas Creek Lot	EBLT @ Texas Creek Lot	EBTH @ Texas Creek Lot
1A	9351	1276	25	96	194	25	25
1B	104	727	25	77	42	25	25
1C	138	1055	25	95	177	25	25
1D	25	222	25	32	25	25	25
2	162	1368	25	120	175	25	46
3	96	577	25	74	84	25	25
4	25	25	25	111	25	25	25

95% Queue Length (ft) by 1A Intersection Condition							
Intersection Condition	WB @ Parkdale Lot	EB @ Parkdale Lot	WBRT @ Fremont Lot	EBLT @ Fremont Lot	WB @ Texas Creek Lot	EBLT @ Texas Creek Lot	EBTH @ Texas Creek Lot
1A	138	1055	25	95	177	25	25
1A w/Accel	5491	1207	25	90	138	25	25
1A w/Decel	229	1516	25	107	110	25	25
1A w/ No Aux	9351	1276	25	96	194	25	25

Parking Lot Capacity Summary for All Alternatives

Alt 1A w/No Auxiliary Lanes

MAX	894
Vehicles served	5378

MAX	35
Vehicles served	796

Alt 2

MAX	756
Vehicles served	7325

MAX	42
Vehicles served	1151

Alt 1B

MAX	397
Vehicles served	6610

MAX	30
Vehicles served	807

Alt 3

MAX	739
Vehicles served	6480

MAX	31
Vehicles served	752

Alt 1D

MAX	511
Vehicles served	5172

MAX	23
Vehicles served	613

Alt 4

MAX	289
Vehicles served	2971

MAX	16
Vehicles served	389

Alt 1A w/Accel Only

MAX	426
Vehicles served	6961

MAX	31
Vehicles served	848

Alt 1A w/Decel Only

MAX	604
Vehicles served	6969

MAX	30
Vehicles served	833

Alt 1A w/Auxiliary Lanes (also 1C)

MAX	705
Vehicles served	6960

MAX	31
Vehicles served	818

Arterial Level of Service: EB Royal Gorge Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd Street	II	35	18.2	3.6	21.8	0.15	24.0	C
9th Street	II	35	51.0	50.6	101.6	0.49	17.5	D
15th St	II	30	61.3	17.1	78.4	0.48	22.2	C
Orchard Ave	II	45	44.6	22.4	67.0	0.56	30.0	B
Raynolds Ave	II	45	46.8	28.5	75.3	0.58	28.0	C
Dozier St	II	45	56.5	5.5	62.0	0.71	41.0	A
Justice Center Rd	II	50	40.6	6.2	46.8	0.56	43.3	A
MacKenzie	II	55	28.9	7.0	35.9	0.33	33.3	B
Total	II		347.9	140.9	488.8	3.87	28.5	B

Arterial Level of Service: WB Royal Gorge Blvd





















Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
MacKenzie	II	55	25.9	11.9	37.8	0.27	25.4	C
Justice Center Rd	II	55	28.9	3.8	32.7	0.33	36.5	A
Dozier St	II	50	40.6	10.7	51.3	0.56	39.5	A
Raynolds Ave	II	45	56.5	31.7	88.2	0.71	28.8	B
Orchard Ave	II	45	46.8	12.6	59.4	0.58	35.4	A
15th St	II	35	57.4	20.1	77.5	0.56	25.9	C
9th Street	II	30	61.3	8.9	70.2	0.48	24.7	C
3rd Street	II	35	51.0	3.6	54.6	0.49	32.6	B
Total	II		368.4	103.3	471.7	3.99	30.4	B

HCM Signalized Intersection Capacity Analysis

No Build

1: Royal Gorge Blvd & MacKenzie

Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	567	150	31	689	7	144	9	35	1	5	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (prot)	1752	3343	1553	1736	3343	1568		1700			1630	
Flt Permitted	0.29	1.00	1.00	0.31	1.00	1.00		0.74			0.99	
Satd. Flow (perm)	532	3343	1553	564	3343	1568		1298			1617	
Peak-hour factor, PHF	0.75	0.81	0.87	0.46	0.94	0.58	0.90	0.75	0.49	0.25	0.42	0.64
Growth Factor (vph)	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	82	756	186	73	792	13	173	13	77	4	13	103
RTOR Reduction (vph)	0	0	90	0	0	6	0	23	0	0	81	0
Lane Group Flow (vph)	82	756	96	73	792	7	0	240	0	0	39	0
Heavy Vehicles (%)	3%	8%	4%	4%	8%	3%	4%	2%	4%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Actuated Green, G (s)	36.2	31.4	31.4	36.2	30.7	30.7		12.8			12.8	
Effective Green, g (s)	38.2	33.4	33.4	38.2	32.7	32.7		13.8			13.8	
Actuated g/C Ratio	0.59	0.51	0.51	0.59	0.50	0.50		0.21			0.21	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	435	1718	798	436	1682	789		276			343	
v/s Ratio Prot	0.02	c0.23		0.01	c0.24							
v/s Ratio Perm	0.09		0.06	0.08		0.00		c0.19			0.02	
v/c Ratio	0.19	0.44	0.12	0.17	0.47	0.01		0.87			0.11	
Uniform Delay, d1	6.1	9.9	8.2	8.7	10.5	8.1		24.7			20.7	
Progression Factor	0.83	0.64	1.31	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.2	0.8	0.3	0.2	0.9	0.0		24.4			0.1	
Delay (s)	5.3	7.2	11.0	8.9	11.5	8.1		49.1			20.8	
Level of Service	A	A	B	A	B	A		D			C	
Approach Delay (s)		7.7			11.2			49.1			20.8	
Approach LOS		A			B			D			C	
Intersection Summary												
HCM Average Control Delay			14.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			56.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Royal Gorge Blvd & Justice Center Rd

No Build
Summer Weekend Midday



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	715	134	20	731	22	168	9	47	19	9	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	12	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.97	1.00
Satd. Flow (prot)	1752	3343	1463	1752	3343	1463		1765	1568		1796	1568
Flt Permitted	0.29	1.00	1.00	0.29	1.00	1.00		0.70	1.00		0.70	1.00
Satd. Flow (perm)	537	3343	1463	544	3343	1463		1295	1568		1302	1568
Peak-hour factor, PHF	0.89	0.90	0.82	0.56	0.91	0.79	0.69	0.45	0.65	0.59	0.45	0.79
Growth Factor (vph)	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	69	858	176	39	868	30	263	22	78	35	22	56
RTOR Reduction (vph)	0	0	66	0	0	11	0	0	34	0	0	42
Lane Group Flow (vph)	69	858	110	39	868	19	0	285	44	0	57	14
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2		6	6		2	4		4	8		8
Actuated Green, G (s)	38.5	38.5	38.5	38.5	38.5	38.5		15.5	15.5		15.5	15.5
Effective Green, g (s)	39.5	40.5	40.5	39.5	40.5	40.5		16.5	16.5		16.5	16.5
Actuated g/C Ratio	0.61	0.62	0.62	0.61	0.62	0.62		0.25	0.25		0.25	0.25
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	326	2083	912	331	2083	912		329	398		331	398
v/s Ratio Prot		0.26			c0.26							
v/s Ratio Perm	0.13		0.07	0.07		0.01		c0.22	0.03		0.04	0.01
v/c Ratio	0.21	0.41	0.12	0.12	0.42	0.02		0.87	0.11		0.17	0.04
Uniform Delay, d1	5.7	6.2	5.0	5.4	6.2	4.7		23.2	18.6		18.9	18.3
Progression Factor	0.94	0.89	1.81	0.46	0.50	0.20		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.5	0.2	0.1	0.5	0.0		20.5	0.1		0.2	0.0
Delay (s)	5.7	6.1	9.3	2.6	3.7	1.0		43.7	18.7		19.2	18.3
Level of Service	A	A	A	A	A	A		D	B		B	B
Approach Delay (s)		6.6			3.5			38.3			18.7	
Approach LOS		A			A			D			B	

Intersection Summary

HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

























c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Royal Gorge Blvd & Dozier St

No Build

Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	219	586	61	24	724	208	63	46	24	209	50	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568	1752	1748		1752	1845	1568
Flt Permitted	0.17	1.00	1.00	0.31	1.00	1.00	0.71	1.00		0.69	1.00	1.00
Satd. Flow (perm)	315	3343	1568	578	3343	1568	1309	1748		1277	1845	1568
Peak-hour factor, PHF	0.90	0.85	0.80	0.67	0.85	0.84	0.79	0.77	0.75	0.87	0.74	0.72
Growth Factor (vph)	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	263	745	82	39	920	267	86	65	35	259	73	261
RTOR Reduction (vph)	0	0	40	0	0	165	0	26	0	0	0	196
Lane Group Flow (vph)	263	745	42	39	920	102	86	74	0	259	73	65
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	3%	3%	3%	3%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		4
Actuated Green, G (s)	33.9	31.2	31.2	33.9	22.9	22.9	15.1	15.1		15.1	15.1	15.1
Effective Green, g (s)	35.9	33.2	33.2	35.9	24.9	24.9	16.1	16.1		16.1	16.1	16.1
Actuated g/C Ratio	0.55	0.51	0.51	0.55	0.38	0.38	0.25	0.25		0.25	0.25	0.25
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	439	1708	801	386	1281	601	324	433		316	457	388
v/s Ratio Prot	c0.11	0.22		0.01	c0.28			0.04			0.04	
v/s Ratio Perm	0.22		0.03	0.05		0.07	0.07		c0.20			0.04
v/c Ratio	0.60	0.44	0.05	0.10	0.72	0.17	0.27	0.17		0.82	0.16	0.17
Uniform Delay, d1	17.2	10.0	8.0	6.9	17.1	13.2	19.7	19.2		23.1	19.2	19.2
Progression Factor	1.09	0.52	1.00	0.57	0.57	0.14	1.00	1.00		0.98	0.99	0.65
Incremental Delay, d2	1.7	0.6	0.1	0.1	3.1	0.5	0.4	0.2		15.2	0.2	0.2
Delay (s)	20.5	5.9	8.1	4.0	12.9	2.4	20.1	19.4		37.8	19.1	12.7
Level of Service	C	A	A	A	B	A	C	B		D	B	B
Approach Delay (s)		9.6			10.3			19.7			24.4	
Approach LOS		A			B			B			C	

Intersection Summary

























HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

No Build

4: Royal Gorge Blvd & Raynolds Ave

Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	27	770	143	56	777	116	106	75	35	88	68	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1807	1568		2002	
Flt Permitted	0.13	1.00	1.00	0.15	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (perm)	237	3343	1568	278	3343	1568		1807	1568		2002	
Peak-hour factor, PHF	0.25	0.95	0.89	0.70	0.91	0.66	0.72	0.54	0.51	0.85	0.81	0.42
Growth Factor (vph)	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	117	875	174	86	922	190	159	150	74	112	91	44
RTOR Reduction (vph)	0	0	110	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	117	875	64	86	922	190	0	309	74	0	241	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free		Split	
Protected Phases	5	2		1	6		3	3			4 8	4 8
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	52.5	44.5	44.5	52.5	44.3	44.3		25.0	130.0		28.5	
Effective Green, g (s)	54.5	47.5	47.5	54.5	47.3	47.3		26.0	130.0		31.5	
Actuated g/C Ratio	0.42	0.37	0.37	0.42	0.36	0.36		0.20	1.00		0.24	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	207	1221	573	219	1216	571		361	1568		485	
v/s Ratio Prot	0.04	c0.26		0.03	c0.28			c0.17			c0.12	
v/s Ratio Perm	0.20		0.04	0.14		0.12			0.05			
v/c Ratio	0.57	0.72	0.11	0.39	0.76	0.33		0.86	0.05		0.50	
Uniform Delay, d1	26.9	35.5	27.3	44.8	36.3	29.9		50.2	0.0		42.4	
Progression Factor	0.67	0.70	0.35	0.74	0.75	0.78		1.00	1.00		0.04	
Incremental Delay, d2	3.2	3.0	0.3	1.0	3.7	1.3		17.7	0.1		0.6	
Delay (s)	21.1	27.8	9.7	34.0	30.9	24.6		67.9	0.1		2.1	
Level of Service	C	C	A	C	C	C		E	A		A	
Approach Delay (s)		24.5			30.1			54.8			2.1	
Approach LOS		C			C			D			A	

Intersection Summary

HCM Average Control Delay	28.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		























c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

No Build

5: Royal Gorge Blvd & Orchard Ave

Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	744	11	15	656	280	7	26	22	195	30	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1842	1568		1969	
Flt Permitted	0.19	1.00	1.00	0.19	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (perm)	357	3343	1568	345	3343	1568		1842	1568		1969	
Peak-hour factor, PHF	0.69	0.93	0.34	0.42	0.91	0.80	0.58	0.50	0.46	0.84	0.68	0.75
Growth Factor (vph)	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	174	864	35	39	779	378	13	56	52	251	48	78
RTOR Reduction (vph)	0	0	21	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	174	864	14	39	779	378	0	69	52	0	370	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free		Split	
Protected Phases	5	2		1	6		3	3			4 8	4 8
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	55.9	50.1	50.1	55.9	43.9	43.9		7.7	130.0		42.4	
Effective Green, g (s)	57.9	53.1	53.1	57.9	46.9	46.9		8.7	130.0		45.4	
Actuated g/C Ratio	0.45	0.41	0.41	0.45	0.36	0.36		0.07	1.00		0.35	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	299	1365	640	227	1206	566		123	1568		688	
v/s Ratio Prot	0.06	c0.26		0.01	0.23			c0.04			c0.19	
v/s Ratio Perm	0.20		0.01	0.07		c0.24			0.03			
v/c Ratio	0.58	0.63	0.02	0.17	0.65	0.67		0.56	0.03		0.54	
Uniform Delay, d1	42.0	30.7	23.0	22.4	34.6	35.0		58.8	0.0		33.9	
Progression Factor	0.66	0.65	1.05	0.35	0.32	0.32		1.00	1.00		0.02	
Incremental Delay, d2	2.7	2.0	0.1	0.3	1.9	4.3		5.7	0.0		0.6	
Delay (s)	30.3	21.8	24.2	8.0	12.8	15.6		64.5	0.0		1.3	
Level of Service	C	C	C	A	B	B		E	A		A	
Approach Delay (s)		23.2			13.5			36.8			1.3	
Approach LOS		C			B			D			A	

Intersection Summary

HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		






















c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

No Build

6: Royal Gorge Blvd & 15th St

Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	216	640	60	4	606	143	67	42	2	246	46	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (prot)	1752	3310		1770	3343	1538		2039		1665	1695	1568
Flt Permitted	0.19	1.00		0.21	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (perm)	353	3310		388	3343	1538		2039		1665	1695	1568
Peak-hour factor, PHF	0.84	0.96	0.79	1.00	0.94	0.87	0.64	0.62	0.25	0.85	0.82	0.90
Growth Factor (vph)	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	278	720	82	4	696	178	113	73	9	313	61	415
RTOR Reduction (vph)	0	0	0	0	0	91	0	2	0	0	0	196
Lane Group Flow (vph)	278	802	0	4	696	87	0	193	0	185	189	219
Heavy Vehicles (%)	3%	8%	2%	2%	8%	5%	2%	2%	2%	3%	3%	3%
Turn Type	D.P+P			Perm		Perm	Split			Split		pm+ov
Protected Phases	5	2			6		3 8	3 8		4	4	5
Permitted Phases	6			6		6						4
Actuated Green, G (s)	60.4	65.4		37.4	37.4	37.4		30.3		17.3	17.3	40.3
Effective Green, g (s)	62.4	66.4		38.4	38.4	38.4		32.3		19.3	19.3	42.3
Actuated g/C Ratio	0.48	0.51		0.30	0.30	0.30		0.25		0.15	0.15	0.33
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0				6.0	6.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	428	1691		115	987	454		507		247	252	558
v/s Ratio Prot	c0.12	0.24			c0.21			c0.09		0.11	c0.11	0.07
v/s Ratio Perm	0.19			0.01		0.06						0.07
v/c Ratio	0.65	0.47		0.03	0.71	0.19		0.38		0.75	0.75	0.39
Uniform Delay, d1	37.9	20.5		32.6	40.8	34.2		40.6		53.0	53.0	33.9
Progression Factor	0.85	0.82		0.47	0.43	0.12		0.15		1.00	1.00	1.00
Incremental Delay, d2	2.2	0.6		0.4	3.4	0.7		0.4		11.7	11.8	0.5
Delay (s)	34.3	17.5		15.7	21.0	5.0		6.5		64.8	64.9	34.4
Level of Service	C	B		B	C	A		A		E	E	C
Approach Delay (s)		21.8			17.8			6.5			48.8	
Approach LOS		C			B			A			D	

Intersection Summary

HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		
























c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

No Build

7: Royal Gorge Blvd & 9th Street

Summer Weekend Midday




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	484	159	409	475	65	150	218	433	121	242	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	12	12	12	12	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1620	3343	1396	1560	3287		1687	1827	1509	1620	1705	1297
Flt Permitted	0.31	1.00	1.00	0.18	1.00		0.17	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	536	3343	1396	300	3287		309	1827	1509	438	1705	1297
Peak-hour factor, PHF	0.79	0.83	0.81	0.92	0.88	0.71	0.75	0.77	0.70	0.72	0.77	0.92
Growth Factor (vph)	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	86	630	212	480	583	99	216	306	668	182	339	43
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	55	0	0	13
Lane Group Flow (vph)	86	630	212	480	672	0	216	306	613	182	339	30
Heavy Vehicles (%)	4%	8%	8%	8%	8%	4%	7%	4%	7%	4%	4%	4%
Parking (#/hr)												1
Turn Type	D.P+P		Free	D.P+P			D.P+P		pm+ov	D.P+P		Perm
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	2		Free	6			8		4	4		8
Actuated Green, G (s)	69.8	32.1	130.0	69.8	62.8		42.2	29.6	67.3	42.2	28.2	28.2
Effective Green, g (s)	69.8	33.1	130.0	69.8	63.8		42.2	30.6	67.3	42.2	29.2	29.2
Actuated g/C Ratio	0.54	0.25	1.00	0.54	0.49		0.32	0.24	0.52	0.32	0.22	0.22
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	346	851	1396	526	1613		249	430	781	257	383	291
v/s Ratio Prot	0.01	0.19		c0.26	0.20		0.09	0.17	c0.23	0.07	c0.20	
v/s Ratio Perm	0.12		0.15	c0.22			0.19		0.18	0.16		0.02
v/c Ratio	0.25	0.74	0.15	0.91	0.42		0.87	0.71	0.79	0.71	0.89	0.10
Uniform Delay, d1	23.3	44.5	0.0	31.3	21.2		51.1	45.6	25.5	34.7	48.8	40.0
Progression Factor	0.97	0.98	1.00	0.45	0.39		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	5.7	0.2	17.1	0.6		25.7	5.5	5.2	8.6	20.8	0.2
Delay (s)	23.0	49.3	0.2	31.3	8.8		76.8	51.1	30.7	43.3	69.6	40.2
Level of Service	C	D	A	C	A		E	D	C	D	E	D
Approach Delay (s)		35.7			18.1			44.3			58.9	
Approach LOS		D			B			D			E	
Intersection Summary												
HCM Average Control Delay			36.4			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			75.0%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

No Build

8: Royal Gorge Blvd & 3rd Street

Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	390	3	20	545	81	9	3	24	36	1	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	12	11	11	12	16	12
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	0.98			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1711	3340		1711	3307			1558	1378		1697	
Flt Permitted	0.32	1.00		0.47	1.00			0.72	1.00		0.90	
Satd. Flow (perm)	578	3340		849	3307			1168	1378		1547	
Peak-hour factor, PHF	0.71	0.86	0.75	0.56	0.79	0.92	0.56	0.75	0.26	0.75	0.25	0.52
Growth Factor (vph)	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	26	490	4	39	745	95	17	4	100	52	4	129
RTOR Reduction (vph)	0	1	0	0	10	0	0	0	84	0	108	0
Lane Group Flow (vph)	26	493	0	39	830	0	0	21	16	0	77	0
Heavy Vehicles (%)	2%	8%	2%	2%	8%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)								0	0	0	0	0
Turn Type	Perm			Perm			Perm			Perm	Perm	
Protected Phases	2			6			8				4	
Permitted Phases	2			6			8			8	4	
Actuated Green, G (s)	45.5	45.5		45.5	45.5			9.5	9.5		9.5	
Effective Green, g (s)	46.5	46.5		46.5	46.5			10.5	10.5		10.5	
Actuated g/C Ratio	0.72	0.72		0.72	0.72			0.16	0.16		0.16	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	413	2389		607	2366			189	223		250	
v/s Ratio Prot		0.15			c0.25							
v/s Ratio Perm	0.04			0.05				0.02	0.01		c0.05	
v/c Ratio	0.06	0.21		0.06	0.35			0.11	0.07		0.31	
Uniform Delay, d1	2.8	3.1		2.8	3.5			23.3	23.1		24.0	
Progression Factor	1.00	1.00		0.80	0.88			1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.2		0.2	0.4			0.3	0.1		0.7	
Delay (s)	3.0	3.3		2.4	3.5			23.5	23.3		24.7	
Level of Service	A	A		A	A			C	C		C	
Approach Delay (s)		3.3			3.4			23.3			24.7	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay	7.1			HCM Level of Service					A			
HCM Volume to Capacity ratio	0.34											
Actuated Cycle Length (s)	65.0			Sum of lost time (s)					8.0			
Intersection Capacity Utilization	38.7%			ICU Level of Service					A			
Analysis Period (min)	15											
c Critical Lane Group												

Arterial Level of Service: EB Royal Gorge Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd Street	II	35	18.2	5.2	23.4	0.15	22.4	C
9th Street	II	35	51.0	78.7	129.7	0.49	13.7	E
15th St	II	30	61.3	11.4	72.7	0.48	23.9	C
Orchard Ave	II	45	44.6	18.5	63.1	0.56	31.8	B
Raynolds Ave	II	45	46.8	28.1	74.9	0.58	28.1	B
Dozier St	II	45	56.5	8.8	65.3	0.71	38.9	A
Justice Center Rd	II	50	40.6	5.2	45.8	0.56	44.3	A
MacKenzie	II	55	28.9	8.4	37.3	0.33	32.0	B
Total	II		347.9	164.3	512.2	3.87	27.2	C

Arterial Level of Service: WB Royal Gorge Blvd





















Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
MacKenzie	II	55	25.9	27.1	53.0	0.27	18.1	D
Justice Center Rd	II	55	28.9	5.6	34.5	0.33	34.6	B
Dozier St	II	50	40.6	33.6	74.2	0.56	27.3	C
Raynolds Ave	II	45	56.5	74.1	130.6	0.71	19.5	D
Orchard Ave	II	45	46.8	18.0	64.8	0.58	32.5	B
15th St	II	35	57.4	34.2	91.6	0.56	21.9	D
9th Street	II	30	61.3	17.1	78.4	0.48	22.2	C
3rd Street	II	35	51.0	6.6	57.6	0.49	30.9	B
Total	II		368.4	216.3	584.7	3.99	24.6	C

HCM Signalized Intersection Capacity Analysis

1: Royal Gorge Blvd & MacKenzie

OTR Alternative 1A

























Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	997	150	31	1453	7	144	9	35	1	5	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (prot)	1752	3343	1553	1736	3343	1568		1700			1630	
Flt Permitted	0.13	1.00	1.00	0.14	1.00	1.00		0.74			0.99	
Satd. Flow (perm)	237	3343	1553	254	3343	1568		1303			1616	
Peak-hour factor, PHF	0.75	0.81	0.87	0.46	0.94	0.58	0.90	0.75	0.49	0.25	0.42	0.64
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	82	1231	186	73	1546	13	173	13	77	4	13	103
RTOR Reduction (vph)	0	0	87	0	0	7	0	23	0	0	80	0
Lane Group Flow (vph)	82	1231	99	73	1546	6	0	240	0	0	40	0
Heavy Vehicles (%)	3%	8%	4%	4%	8%	3%	4%	2%	4%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Actuated Green, G (s)	35.6	32.6	32.6	35.6	30.1	30.1		13.4			13.4	
Effective Green, g (s)	37.6	34.6	34.6	37.6	32.1	32.1		14.4			14.4	
Actuated g/C Ratio	0.58	0.53	0.53	0.58	0.49	0.49		0.22			0.22	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	289	1780	827	238	1651	774		289			358	
v/s Ratio Prot	0.03	c0.37		0.02	c0.46							
v/s Ratio Perm	0.14		0.06	0.16		0.00		c0.18			0.02	
v/c Ratio	0.28	0.69	0.12	0.31	0.94	0.01		0.83			0.11	
Uniform Delay, d1	10.6	11.3	7.6	15.3	15.5	8.4		24.1			20.2	
Progression Factor	0.65	0.62	0.71	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.5	1.9	0.3	0.7	11.5	0.0		17.5			0.1	
Delay (s)	7.4	8.9	5.6	16.0	27.0	8.4		41.7			20.3	
Level of Service	A	A	A	B	C	A		D			C	
Approach Delay (s)		8.4			26.3			41.7			20.3	
Approach LOS		A			C			D			C	
Intersection Summary												
HCM Average Control Delay			19.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			73.3%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Royal Gorge Blvd & Justice Center Rd

OTR Alternative 1A
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	57	1157	134	20	1498	22	168	9	47	19	9	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	12	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.97	1.00
Satd. Flow (prot)	1752	3343	1463	1752	3343	1463		1765	1568		1796	1568
Flt Permitted	0.10	1.00	1.00	0.16	1.00	1.00		0.70	1.00		0.68	1.00
Satd. Flow (perm)	184	3343	1463	294	3343	1463		1295	1568		1260	1568
Peak-hour factor, PHF	0.89	0.90	0.82	0.56	0.91	0.79	0.69	0.45	0.65	0.59	0.45	0.79
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	69	1286	176	39	1646	30	263	22	78	35	22	56
RTOR Reduction (vph)	0	0	65	0	0	11	0	0	33	0	0	42
Lane Group Flow (vph)	69	1286	111	39	1646	19	0	285	45	0	57	14
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2		6	6		2	4		4	8		8
Actuated Green, G (s)	39.1	39.1	39.1	39.1	39.1	39.1		14.9	14.9		14.9	14.9
Effective Green, g (s)	40.1	41.1	41.1	40.1	41.1	41.1		15.9	15.9		15.9	15.9
Actuated g/C Ratio	0.62	0.63	0.63	0.62	0.63	0.63		0.24	0.24		0.24	0.24
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	114	2114	925	181	2114	925		317	384		308	384
v/s Ratio Prot		0.38			c0.49							
v/s Ratio Perm	0.37		0.08	0.13		0.01		c0.22	0.03		0.05	0.01
v/c Ratio	0.61	0.61	0.12	0.22	0.78	0.02		0.90	0.12		0.19	0.04
Uniform Delay, d1	7.6	7.1	4.8	5.5	8.7	4.5		23.8	19.1		19.4	18.7
Progression Factor	0.63	0.57	0.42	0.19	0.46	0.01		1.00	1.00		1.00	1.00
Incremental Delay, d2	6.8	1.0	0.2	0.3	1.4	0.0		26.4	0.1		0.3	0.0
Delay (s)	11.6	5.1	2.2	1.3	5.4	0.1		50.1	19.2		19.7	18.7
Level of Service	B	A	A	A	A	A		D	B		B	B
Approach Delay (s)		5.1			5.2			43.5			19.2	
Approach LOS		A			A			D			B	

Intersection Summary




























HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Royal Gorge Blvd & Dozier St

OTR Alternative 1A
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	219	1018	61	24	1491	208	63	46	24	209	50	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568	1752	1748		1752	1845	1568
Flt Permitted	0.13	1.00	1.00	0.16	1.00	1.00	0.71	1.00		0.69	1.00	1.00
Satd. Flow (perm)	246	3343	1568	290	3343	1568	1309	1748		1277	1845	1568
Peak-hour factor, PHF	0.90	0.85	0.80	0.67	0.85	0.84	0.79	0.77	0.75	0.87	0.74	0.72
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	263	1198	82	39	1754	267	86	65	35	259	73	261
RTOR Reduction (vph)	0	0	37	0	0	140	0	27	0	0	0	93
Lane Group Flow (vph)	263	1198	45	39	1754	127	86	73	0	259	73	168
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	3%	3%	3%	3%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		4
Actuated Green, G (s)	36.0	34.0	34.0	36.0	29.0	29.0	13.0	13.0		13.0	13.0	13.0
Effective Green, g (s)	38.0	36.0	36.0	38.0	31.0	31.0	14.0	14.0		14.0	14.0	14.0
Actuated g/C Ratio	0.58	0.55	0.55	0.58	0.48	0.48	0.22	0.22		0.22	0.22	0.22
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	329	1852	868	237	1594	748	282	376		275	397	338
v/s Ratio Prot	0.10	c0.36		0.01	c0.52			0.04			0.04	
v/s Ratio Perm	0.37		0.03	0.09		0.08	0.07			c0.20		0.11
v/c Ratio	0.80	0.65	0.05	0.16	1.10	0.17	0.30	0.19		0.94	0.18	0.50
Uniform Delay, d1	24.4	10.1	6.7	6.9	17.0	9.7	21.4	20.9		25.1	20.8	22.4
Progression Factor	1.45	0.87	1.37	0.90	0.84	1.99	1.00	1.00		0.99	0.99	0.88
Incremental Delay, d2	8.8	1.2	0.1	0.2	52.2	0.3	0.6	0.3		38.7	0.2	1.1
Delay (s)	44.3	10.0	9.2	6.4	66.5	19.6	22.0	21.1		63.5	20.9	20.9
Level of Service	D	A	A	A	E	B	C	C		E	C	C
Approach Delay (s)		15.8			59.3			21.5			39.5	
Approach LOS		B			E			C			D	






















Intersection Summary

HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Royal Gorge Blvd & Reynolds Ave

OTR Alternative 1A
Summer Weekend Midday























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	1217	143	56	1548	116	106	75	35	88	68	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1807	1568		2002	
Flt Permitted	0.07	1.00	1.00	0.08	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (perm)	124	3343	1568	154	3343	1568		1807	1568		2002	
Peak-hour factor, PHF	0.25	0.95	0.89	0.70	0.91	0.66	0.72	0.54	0.51	0.85	0.81	0.42
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	117	1281	174	86	1701	190	159	150	74	112	91	44
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	117	1281	83	86	1701	190	0	309	74	0	241	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free	Split		
Protected Phases	5	2		1	6		3	3		4 8	4 8	
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	64.9	58.9	58.9	64.9	58.5	58.5		24.1	130.0		17.0	
Effective Green, g (s)	66.9	61.9	61.9	66.9	61.5	61.5		25.1	130.0		20.0	
Actuated g/C Ratio	0.51	0.48	0.48	0.51	0.47	0.47		0.19	1.00		0.15	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	156	1592	747	165	1581	742		349	1568		308	
v/s Ratio Prot	c0.04	0.38		0.03	c0.51			c0.17			c0.12	
v/s Ratio Perm	0.34		0.05	0.24		0.12			c0.05			
v/c Ratio	0.75	0.80	0.11	0.52	1.08	0.26		0.89	0.05		0.78	
Uniform Delay, d1	29.1	28.9	18.8	22.7	34.2	20.5		51.0	0.0		52.9	
Progression Factor	1.02	0.84	1.60	1.22	1.05	1.06		1.00	1.00		0.12	
Incremental Delay, d2	13.7	3.2	0.2	1.1	39.3	0.3		22.4	0.1		1.2	
Delay (s)	43.2	27.5	30.2	28.9	75.3	22.1		73.5	0.1		7.6	
Level of Service	D	C	C	C	E	C		E	A		A	
Approach Delay (s)		29.0			68.2			59.3			7.6	
Approach LOS		C			E			E			A	
Intersection Summary												
HCM Average Control Delay			49.0			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			73.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Royal Gorge Blvd & Orchard Ave

OTR Alternative 1A






















Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	1189	11	15	1417	280	7	26	22	195	30	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1842	1568		1969	
Flt Permitted	0.06	1.00	1.00	0.12	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (perm)	119	3343	1568	216	3343	1568		1842	1568		1969	
Peak-hour factor, PHF	0.69	0.93	0.34	0.42	0.91	0.80	0.58	0.50	0.46	0.84	0.68	0.75
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	174	1278	35	39	1557	378	13	56	52	251	48	78
RTOR Reduction (vph)	0	0	16	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	174	1278	19	39	1557	378	0	69	52	0	370	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free	Split		
Protected Phases	5	2		1	6		3	3		4 8	4 8	
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	73.1	67.5	67.5	73.1	61.1	61.1		8.9	130.0		24.0	
Effective Green, g (s)	75.1	70.5	70.5	75.1	64.1	64.1		9.9	130.0		27.0	
Actuated g/C Ratio	0.58	0.54	0.54	0.58	0.49	0.49		0.08	1.00		0.21	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	232	1813	850	203	1648	773		140	1568		409	
v/s Ratio Prot	c0.07	0.38		0.01	c0.47			c0.04			c0.19	
v/s Ratio Perm	0.36		0.01	0.10		0.24			0.03			
v/c Ratio	0.75	0.70	0.02	0.19	0.94	0.49		0.49	0.03		0.90	
Uniform Delay, d1	35.3	22.0	13.8	16.1	31.3	22.0		57.6	0.0		50.2	
Progression Factor	1.02	0.73	0.62	0.29	0.47	0.34		1.00	1.00		0.11	
Incremental Delay, d2	10.8	1.9	0.0	0.0	1.6	0.2		2.7	0.0		2.9	
Delay (s)	46.9	17.9	8.5	4.7	16.4	7.6		60.4	0.0		8.6	
Level of Service	D	B	A	A	B	A		E	A		A	
Approach Delay (s)		21.1			14.4			34.4			8.6	
Approach LOS		C			B			C			A	
Intersection Summary												
HCM Average Control Delay			17.0			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			79.4%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Royal Gorge Blvd & 15th St

OTR Alternative 1A
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	216	1076	60	4	1363	143	67	42	2	246	46	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (prot)	1752	3321		1770	3343	1538		2039		1665	1695	1568
Flt Permitted	0.07	1.00		0.13	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (perm)	137	3321		234	3343	1538		2039		1665	1695	1568
Peak-hour factor, PHF	0.84	0.96	0.79	1.00	0.94	0.87	0.64	0.62	0.25	0.85	0.82	0.90
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	278	1121	82	4	1450	178	113	73	9	313	61	415
RTOR Reduction (vph)	0	0	0	0	0	43	0	2	0	0	0	83
Lane Group Flow (vph)	278	1203	0	4	1450	135	0	193	0	185	189	332
Heavy Vehicles (%)	3%	8%	2%	2%	8%	5%	2%	2%	2%	3%	3%	3%
Turn Type	D.P+P			Perm		Perm	Split			Split		pm+ov
Protected Phases	5	2			6		3	8		4	4	5
Permitted Phases	6			6		6						4
Actuated Green, G (s)	70.8	75.8		52.8	52.8	52.8		19.9		17.3	17.3	35.3
Effective Green, g (s)	72.8	76.8		53.8	53.8	53.8		21.9		19.3	19.3	37.3
Actuated g/C Ratio	0.56	0.59		0.41	0.41	0.41		0.17		0.15	0.15	0.29
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0				6.0	6.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	313	1962		97	1383	636		343		247	252	498
v/s Ratio Prot	c0.13	0.36			c0.43			c0.09		0.11	c0.11	0.10
v/s Ratio Perm	0.37			0.02		0.09						0.11
v/c Ratio	0.89	0.61		0.04	1.05	0.21		0.56		0.75	0.75	0.67
Uniform Delay, d1	50.9	17.1		22.7	38.1	24.5		49.7		53.0	53.0	40.9
Progression Factor	0.86	0.66		0.57	0.40	0.33		0.16		1.00	1.00	1.00
Incremental Delay, d2	9.6	0.4		0.3	29.6	0.3		1.2		11.7	11.8	3.4
Delay (s)	53.3	11.7		13.2	44.9	8.5		8.9		64.8	64.9	44.3
Level of Service	D	B		B	D	A		A		E	E	D
Approach Delay (s)		19.5			40.9			8.9			54.0	
Approach LOS		B			D			A			D	

Intersection Summary
























HCM Average Control Delay	34.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: Royal Gorge Blvd & 9th Street




















OTR Alternative 1A
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	908	159	409	1222	65	150	218	433	121	242	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	12	12	12	12	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1620	3343	1396	1560	3317		1687	1827	1509	1620	1705	1297
Flt Permitted	0.06	1.00	1.00	0.10	1.00		0.17	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	103	3343	1396	164	3317		296	1827	1509	283	1705	1297
Peak-hour factor, PHF	0.79	0.83	0.81	0.92	0.88	0.71	0.75	0.77	0.70	0.72	0.77	0.92
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	86	1094	212	480	1389	99	216	306	668	182	339	43
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	32	0	0	13
Lane Group Flow (vph)	86	1094	212	480	1484	0	216	306	636	182	339	30
Heavy Vehicles (%)	4%	8%	8%	8%	8%	4%	7%	4%	7%	4%	4%	4%
Parking (#/hr)												1
Turn Type	D.P+P		Free	D.P+P			D.P+P		pm+ov	D.P+P		Perm
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	2		Free	6			8		4	4		8
Actuated Green, G (s)	74.0	40.0	130.0	74.0	66.5		38.0	24.5	58.5	38.0	24.0	24.0
Effective Green, g (s)	74.0	41.0	130.0	74.0	67.5		38.0	25.5	58.5	38.0	25.0	25.0
Actuated g/C Ratio	0.57	0.32	1.00	0.57	0.52		0.29	0.20	0.45	0.29	0.19	0.19
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	146	1054	1396	458	1722		236	358	679	222	328	249
v/s Ratio Prot	0.03	c0.33		c0.27	0.45		c0.10	0.17	0.24	0.09	c0.20	
v/s Ratio Perm	0.30		c0.15	0.32			0.17		0.18	0.15		0.02
v/c Ratio	0.59	1.04	0.15	1.05	0.86		0.92	0.85	0.94	0.82	1.03	0.12
Uniform Delay, d1	23.2	44.5	0.0	39.7	27.2		39.1	50.5	34.0	38.1	52.5	43.4
Progression Factor	0.98	0.94	1.00	1.00	0.53		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	37.6	0.2	39.4	2.4		36.2	17.7	20.2	20.5	58.6	0.2
Delay (s)	28.5	79.5	0.2	79.3	16.7		75.3	68.2	54.2	58.6	111.1	43.6
Level of Service	C	E	A	E	B		E	E	D	E	F	D
Approach Delay (s)		64.2			32.0			61.6			89.0	
Approach LOS		E			C			E			F	
Intersection Summary												
HCM Average Control Delay			54.0			HCM Level of Service			D			
HCM Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			85.6%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Royal Gorge Blvd & 3rd Street

OTR Alternative 1A
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	806	3	20	1298	81	9	3	24	36	1	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	12	11	11	12	16	12
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1711	3341		1711	3325			1558	1378		1697	
Flt Permitted	0.09	1.00		0.28	1.00			0.78	1.00		0.90	
Satd. Flow (perm)	160	3341		504	3325			1264	1378		1556	
Peak-hour factor, PHF	0.71	0.86	0.75	0.56	0.79	0.92	0.56	0.75	0.26	0.75	0.25	0.52
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	26	937	4	39	1643	95	17	4	100	52	4	129
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	82	0	31	0
Lane Group Flow (vph)	26	941	0	39	1732	0	0	21	18	0	154	0
Heavy Vehicles (%)	2%	8%	2%	2%	8%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)								0	0	0	0	0
Turn Type	Perm			Perm			Perm			Perm	Perm	
Protected Phases	2			6			8			8		4
Permitted Phases	2			6			8			8		4
Actuated Green, G (s)	44.1	44.1		44.1	44.1			10.9	10.9		10.9	
Effective Green, g (s)	45.1	45.1		45.1	45.1			11.9	11.9		11.9	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.18	0.18		0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	111	2318		350	2307			231	252		285	
v/s Ratio Prot	0.28			c0.52								
v/s Ratio Perm	0.16			0.08				0.02	0.01		c0.10	
v/c Ratio	0.23	0.41		0.11	0.75			0.09	0.07		0.54	
Uniform Delay, d1	3.6	4.2		3.3	6.4			22.1	22.0		24.1	
Progression Factor	1.00	1.00		0.87	0.77			1.00	1.00		1.00	
Incremental Delay, d2	4.9	0.5		0.4	1.4			0.2	0.1		2.1	
Delay (s)	8.5	4.8		3.2	6.3			22.2	22.1		26.2	
Level of Service	A	A		A	A			C	C		C	
Approach Delay (s)	4.9			6.2			22.1			26.2		
Approach LOS	A			A			C			C		
Intersection Summary												
HCM Average Control Delay	7.6			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.71											
Actuated Cycle Length (s)	65.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	58.3%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

Arterial Level of Service: EB Royal Gorge Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd Street	II	35	18.2	4.4	22.6	0.15	23.2	C
9th Street	II	35	51.0	69.7	120.7	0.49	14.8	E
15th St	II	30	61.3	11.6	72.9	0.48	23.8	C
Orchard Ave	II	45	44.6	18.1	62.7	0.56	32.0	B
Raynolds Ave	II	45	46.8	26.9	73.7	0.58	28.6	B
Dozier St	II	45	56.5	6.8	63.3	0.71	40.2	A
Justice Center Rd	II	50	40.6	4.9	45.5	0.56	44.6	A
MacKenzie	II	55	28.9	7.2	36.1	0.33	33.1	B
Total	II		347.9	149.6	497.5	3.87	28.0	C

Arterial Level of Service: WB Royal Gorge Blvd





















Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
MacKenzie	II	55	25.9	19.4	45.3	0.27	21.2	D
Justice Center Rd	II	55	28.9	4.4	33.3	0.33	35.9	A
Dozier St	II	50	40.6	19.8	60.4	0.56	33.6	B
Raynolds Ave	II	45	56.5	49.5	106.0	0.71	24.0	C
Orchard Ave	II	45	46.8	14.9	61.7	0.58	34.1	B
15th St	II	35	57.4	13.4	70.8	0.56	28.4	B
9th Street	II	30	61.3	18.8	80.1	0.48	21.7	D
3rd Street	II	35	51.0	4.7	55.7	0.49	32.0	B
Total	II		368.4	144.9	513.3	3.99	28.0	C

HCM Signalized Intersection Capacity Analysis

1: Royal Gorge Blvd & MacKenzie

OTR Alternative 1D

























Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	820	150	31	1259	7	144	9	35	1	5	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (prot)	1752	3343	1553	1736	3343	1568		1700			1630	
Flt Permitted	0.13	1.00	1.00	0.21	1.00	1.00		0.74			0.99	
Satd. Flow (perm)	237	3343	1553	382	3343	1568		1303			1616	
Peak-hour factor, PHF	0.75	0.81	0.87	0.46	0.94	0.58	0.90	0.75	0.49	0.25	0.42	0.64
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	82	1012	186	73	1339	13	173	13	77	4	13	103
RTOR Reduction (vph)	0	0	87	0	0	7	0	23	0	0	80	0
Lane Group Flow (vph)	82	1012	99	73	1339	6	0	240	0	0	40	0
Heavy Vehicles (%)	3%	8%	4%	4%	8%	3%	4%	2%	4%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Actuated Green, G (s)	35.6	32.6	32.6	35.6	30.1	30.1		13.4			13.4	
Effective Green, g (s)	37.6	34.6	34.6	37.6	32.1	32.1		14.4			14.4	
Actuated g/C Ratio	0.58	0.53	0.53	0.58	0.49	0.49		0.22			0.22	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	289	1780	827	304	1651	774		289			358	
v/s Ratio Prot	0.03	c0.30		0.01	c0.40							
v/s Ratio Perm	0.14		0.06	0.12		0.00		c0.18			0.02	
v/c Ratio	0.28	0.57	0.12	0.24	0.81	0.01		0.83			0.11	
Uniform Delay, d1	8.7	10.2	7.6	11.7	13.9	8.4		24.1			20.2	
Progression Factor	0.78	0.62	0.94	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.5	1.2	0.3	0.4	4.4	0.0		17.5			0.1	
Delay (s)	7.3	7.6	7.4	12.1	18.3	8.4		41.7			20.3	
Level of Service	A	A	A	B	B	A		D			C	
Approach Delay (s)		7.5			17.9			41.7			20.3	
Approach LOS		A			B			D			C	
Intersection Summary												
HCM Average Control Delay			15.7			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			67.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Royal Gorge Blvd & Justice Center Rd

OTR Alternative 1D
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	57	980	134	20	1304	22	168	9	47	19	9	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	12	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.97	1.00
Satd. Flow (prot)	1752	3343	1463	1752	3343	1463		1765	1568		1796	1568
Flt Permitted	0.12	1.00	1.00	0.22	1.00	1.00		0.70	1.00		0.68	1.00
Satd. Flow (perm)	229	3343	1463	397	3343	1463		1295	1568		1260	1568
Peak-hour factor, PHF	0.89	0.90	0.82	0.56	0.91	0.79	0.69	0.45	0.65	0.59	0.45	0.79
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	69	1089	176	39	1433	30	263	22	78	35	22	56
RTOR Reduction (vph)	0	0	65	0	0	11	0	0	33	0	0	42
Lane Group Flow (vph)	69	1089	111	39	1433	19	0	285	45	0	57	14
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2		6	6		2	4		4	8		8
Actuated Green, G (s)	39.1	39.1	39.1	39.1	39.1	39.1		14.9	14.9		14.9	14.9
Effective Green, g (s)	40.1	41.1	41.1	40.1	41.1	41.1		15.9	15.9		15.9	15.9
Actuated g/C Ratio	0.62	0.63	0.63	0.62	0.63	0.63		0.24	0.24		0.24	0.24
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	141	2114	925	245	2114	925		317	384		308	384
v/s Ratio Prot		0.33			c0.43							
v/s Ratio Perm	0.30		0.08	0.10		0.01		c0.22	0.03		0.05	0.01
v/c Ratio	0.49	0.52	0.12	0.16	0.68	0.02		0.90	0.12		0.19	0.04
Uniform Delay, d1	6.8	6.5	4.8	5.3	7.7	4.5		23.8	19.1		19.4	18.7
Progression Factor	0.63	0.63	0.68	0.23	0.41	0.02		1.00	1.00		1.00	1.00
Incremental Delay, d2	2.3	0.8	0.2	0.2	1.1	0.0		26.4	0.1		0.3	0.0
Delay (s)	6.6	4.8	3.5	1.4	4.2	0.1		50.1	19.2		19.7	18.7
Level of Service	A	A	A	A	A	A		D	B		B	B
Approach Delay (s)		4.7			4.1			43.5			19.2	
Approach LOS		A			A			D			B	

Intersection Summary




























HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Royal Gorge Blvd & Dozier St

OTR Alternative 1D
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	219	841	61	24	1297	208	63	46	24	209	50	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568	1752	1748		1752	1845	1568
Flt Permitted	0.14	1.00	1.00	0.22	1.00	1.00	0.71	1.00		0.69	1.00	1.00
Satd. Flow (perm)	259	3343	1568	400	3343	1568	1309	1748		1277	1845	1568
Peak-hour factor, PHF	0.90	0.85	0.80	0.67	0.85	0.84	0.79	0.77	0.75	0.87	0.74	0.72
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	263	989	82	39	1526	267	86	65	35	259	73	261
RTOR Reduction (vph)	0	0	38	0	0	146	0	27	0	0	0	100
Lane Group Flow (vph)	263	989	44	39	1526	121	86	73	0	259	73	161
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	3%	3%	3%	3%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		4
Actuated Green, G (s)	34.5	32.5	32.5	34.5	27.5	27.5	14.5	14.5		14.5	14.5	14.5
Effective Green, g (s)	36.5	34.5	34.5	36.5	29.5	29.5	15.5	15.5		15.5	15.5	15.5
Actuated g/C Ratio	0.56	0.53	0.53	0.56	0.45	0.45	0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	329	1774	832	287	1517	712	312	417		305	440	374
v/s Ratio Prot	c0.10	0.30		0.01	c0.46			0.04			0.04	
v/s Ratio Perm	0.35		0.03	0.07		0.08	0.07		c0.20			0.10
v/c Ratio	0.80	0.56	0.05	0.14	1.01	0.17	0.28	0.18		0.85	0.17	0.43
Uniform Delay, d1	24.4	10.2	7.4	7.0	17.8	10.5	20.2	19.7		23.6	19.6	21.0
Progression Factor	1.46	0.65	0.89	0.61	0.73	1.35	1.00	1.00		0.98	0.99	0.87
Incremental Delay, d2	9.9	1.0	0.1	0.2	21.3	0.4	0.5	0.2		19.3	0.2	0.8
Delay (s)	45.4	7.6	6.6	4.4	34.3	14.6	20.6	19.9		42.5	19.6	19.0
Level of Service	D	A	A	A	C	B	C	B		D	B	B
Approach Delay (s)		15.0			30.8			20.2			29.3	
Approach LOS		B			C			C			C	






















Intersection Summary

HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Royal Gorge Blvd & Reynolds Ave

OTR Alternative 1D
Summer Weekend Midday

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	1040	143	56	1354	116	106	75	35	88	68	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1807	1568		2002	
Flt Permitted	0.07	1.00	1.00	0.13	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (perm)	129	3343	1568	241	3343	1568		1807	1568		2002	
Peak-hour factor, PHF	0.25	0.95	0.89	0.70	0.91	0.66	0.72	0.54	0.51	0.85	0.81	0.42
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	117	1095	174	86	1488	190	159	150	74	112	91	44
RTOR Reduction (vph)	0	0	94	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	117	1095	80	86	1488	190	0	309	74	0	241	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free	Split		
Protected Phases	5	2		1	6		3	3		4 8	4 8	
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	64.5	57.0	57.0	64.5	56.4	56.4		24.5	130.0		17.0	
Effective Green, g (s)	66.5	60.0	60.0	66.5	59.4	59.4		25.5	130.0		20.0	
Actuated g/C Ratio	0.51	0.46	0.46	0.51	0.46	0.46		0.20	1.00		0.15	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	180	1543	724	222	1527	716		354	1568		308	
v/s Ratio Prot	c0.05	0.33		0.03	c0.45			c0.17			c0.12	
v/s Ratio Perm	0.29		0.05	0.17		0.12			c0.05			
v/c Ratio	0.65	0.71	0.11	0.39	0.97	0.27		0.87	0.05		0.78	
Uniform Delay, d1	27.6	28.0	19.9	20.2	34.6	21.8		50.7	0.0		52.9	
Progression Factor	0.84	0.85	2.00	1.12	1.08	1.09		1.00	1.00		0.10	
Incremental Delay, d2	6.7	2.2	0.2	0.6	11.7	0.5		20.4	0.1		1.2	
Delay (s)	29.9	26.1	39.9	23.3	49.0	24.3		71.1	0.1		6.7	
Level of Service	C	C	D	C	D	C		E	A		A	
Approach Delay (s)		28.2			45.1			57.3			6.7	
Approach LOS		C			D			E			A	
Intersection Summary												
HCM Average Control Delay			37.6			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			69.3%			ICU Level of Service			C			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Royal Gorge Blvd & Orchard Ave

OTR Alternative 1D
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	111	1012	11	15	1223	280	7	26	22	195	30	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1842	1568		1969	
Flt Permitted	0.07	1.00	1.00	0.17	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (perm)	134	3343	1568	310	3343	1568		1842	1568		1969	
Peak-hour factor, PHF	0.69	0.93	0.34	0.42	0.91	0.80	0.58	0.50	0.46	0.84	0.68	0.75
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	174	1088	35	39	1344	378	13	56	52	251	48	78
RTOR Reduction (vph)	0	0	16	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	174	1088	19	39	1344	378	0	69	52	0	370	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free	Split		
Protected Phases	5	2		1	6		3	3		4	8	4
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	72.1	66.5	66.5	72.1	60.1	60.1		8.9	130.0		25.0	
Effective Green, g (s)	74.1	69.5	69.5	74.1	63.1	63.1		9.9	130.0		28.0	
Actuated g/C Ratio	0.57	0.53	0.53	0.57	0.49	0.49		0.08	1.00		0.22	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	238	1787	838	250	1623	761		140	1568		424	
v/s Ratio Prot	c0.07	0.33		0.01	c0.40			c0.04			c0.19	
v/s Ratio Perm	0.34		0.01	0.08		0.24			0.03			
v/c Ratio	0.73	0.61	0.02	0.16	0.83	0.50		0.49	0.03		0.87	
Uniform Delay, d1	30.6	20.9	14.2	14.7	28.8	22.7		57.6	0.0		49.3	
Progression Factor	1.09	0.78	0.80	0.31	0.44	0.32		1.00	1.00		0.11	
Incremental Delay, d2	9.8	1.3	0.0	0.1	2.0	0.9		2.7	0.0		2.0	
Delay (s)	43.3	17.5	11.4	4.7	14.7	8.2		60.4	0.0		7.2	
Level of Service	D	B	B	A	B	A		E	A		A	
Approach Delay (s)		20.8			13.1			34.4			7.2	
Approach LOS		C			B			C			A	

Intersection Summary






















HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Royal Gorge Blvd & 15th St

OTR Alternative 1D
Summer Weekend Midday
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	216	899	60	4	1169	143	67	42	2	246	46	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (prot)	1752	3317		1770	3343	1538		2039		1665	1695	1568
Flt Permitted	0.07	1.00		0.19	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (perm)	132	3317		362	3343	1538		2039		1665	1695	1568
Peak-hour factor, PHF	0.84	0.96	0.79	1.00	0.94	0.87	0.64	0.62	0.25	0.85	0.82	0.90
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	278	936	82	4	1244	178	113	73	9	313	61	415
RTOR Reduction (vph)	0	0	0	0	0	51	0	2	0	0	0	79
Lane Group Flow (vph)	278	1018	0	4	1244	127	0	193	0	185	189	336
Heavy Vehicles (%)	3%	8%	2%	2%	8%	5%	2%	2%	2%	3%	3%	3%
Turn Type	D.P+P			Perm		Perm	Split			Split		pm+ov
Protected Phases	5	2			6		3	8		4	4	5
Permitted Phases	6			6		6						4
Actuated Green, G (s)	73.8	78.8		54.8	54.8	54.8		17.9		16.3	16.3	35.3
Effective Green, g (s)	75.8	79.8		55.8	55.8	55.8		19.9		18.3	18.3	37.3
Actuated g/C Ratio	0.58	0.61		0.43	0.43	0.43		0.15		0.14	0.14	0.29
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0				6.0	6.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	326	2036		155	1435	660		312		234	239	498
v/s Ratio Prot	c0.13	0.31			c0.37			c0.09		0.11	c0.11	0.10
v/s Ratio Perm	0.37			0.01		0.08						0.11
v/c Ratio	0.85	0.50		0.03	0.87	0.19		0.62		0.79	0.79	0.67
Uniform Delay, d1	44.3	14.0		21.4	33.7	23.1		51.5		54.0	54.0	41.0
Progression Factor	0.91	0.83		0.47	0.28	0.20		0.22		1.00	1.00	1.00
Incremental Delay, d2	9.8	0.4		0.2	4.2	0.4		1.1		16.5	16.2	3.6
Delay (s)	49.9	11.9		10.3	13.8	4.9		12.3		70.5	70.2	44.6
Level of Service	D	B		B	B	A		B		E	E	D
Approach Delay (s)		20.1			12.7			12.3			56.8	
Approach LOS		C			B			B			E	
Intersection Summary												
HCM Average Control Delay			24.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			78.8%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: Royal Gorge Blvd & 9th Street

OTR Alternative 1D




















Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	731	159	409	1028	65	150	218	433	121	242	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	12	12	12	12	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1620	3343	1396	1560	3313		1687	1827	1509	1620	1705	1297
Flt Permitted	0.10	1.00	1.00	0.12	1.00		0.16	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	165	3343	1396	193	3313		275	1827	1509	452	1705	1297
Peak-hour factor, PHF	0.79	0.83	0.81	0.92	0.88	0.71	0.75	0.77	0.70	0.72	0.77	0.92
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	86	881	212	480	1168	99	216	306	668	182	339	43
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	32	0	0	13
Lane Group Flow (vph)	86	881	212	480	1262	0	216	306	636	182	339	30
Heavy Vehicles (%)	4%	8%	8%	8%	8%	4%	7%	4%	7%	4%	4%	4%
Parking (#/hr)												1
Turn Type	D.P+P		Free	D.P+P			D.P+P		pm+ov	D.P+P		Perm
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	2		Free	6			8		4	4		8
Actuated Green, G (s)	70.8	34.1	130.0	70.8	62.7		41.2	30.2	66.9	41.2	27.2	27.2
Effective Green, g (s)	70.8	35.1	130.0	70.8	63.7		41.2	31.2	66.9	41.2	28.2	28.2
Actuated g/C Ratio	0.54	0.27	1.00	0.54	0.49		0.32	0.24	0.51	0.32	0.22	0.22
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	181	903	1396	491	1623		239	438	777	242	370	281
v/s Ratio Prot	0.03	c0.26		c0.28	0.38		c0.10	0.17	0.23	0.06	c0.20	
v/s Ratio Perm	0.23		c0.15	0.26			0.19		0.19	0.17		0.02
v/c Ratio	0.48	0.98	0.15	0.98	0.78		0.90	0.70	0.82	0.75	0.92	0.11
Uniform Delay, d1	20.4	47.0	0.0	37.8	27.3		36.7	45.1	26.5	35.7	49.7	40.8
Progression Factor	1.09	0.96	1.00	0.89	0.60		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	24.4	0.2	25.2	2.2		33.5	4.8	6.7	12.4	26.7	0.2
Delay (s)	24.1	69.4	0.2	58.9	18.5		70.2	49.9	33.2	48.1	76.4	41.0
Level of Service	C	E	A	E	B		E	D	C	D	E	D
Approach Delay (s)		53.6			29.6			44.2			64.6	
Approach LOS		D			C			D			E	
Intersection Summary												
HCM Average Control Delay			43.6			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			80.7%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Royal Gorge Blvd & 3rd Street

OTR Alternative 1D
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	629	3	20	1104	81	9	3	24	36	1	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	12	11	11	12	16	12
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1711	3341		1711	3322			1558	1378		1697	
Flt Permitted	0.13	1.00		0.36	1.00			0.76	1.00		0.90	
Satd. Flow (perm)	239	3341		651	3322			1233	1378		1553	
Peak-hour factor, PHF	0.71	0.86	0.75	0.56	0.79	0.92	0.56	0.75	0.26	0.75	0.25	0.52
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	26	731	4	39	1397	95	17	4	100	52	4	129
RTOR Reduction (vph)	0	1	0	0	7	0	0	0	82	0	54	0
Lane Group Flow (vph)	26	734	0	39	1485	0	0	21	18	0	131	0
Heavy Vehicles (%)	2%	8%	2%	2%	8%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)								0	0	0	0	0
Turn Type	Perm			Perm			Perm			Perm	Perm	
Protected Phases	2			6			8				4	
Permitted Phases	2			6			8			8	4	
Actuated Green, G (s)	44.6	44.6		44.6	44.6			10.4	10.4		10.4	
Effective Green, g (s)	45.6	45.6		45.6	45.6			11.4	11.4		11.4	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.18	0.18		0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	168	2344		457	2331			216	242		272	
v/s Ratio Prot		0.22			c0.45							
v/s Ratio Perm	0.11			0.06				0.02	0.01		c0.08	
v/c Ratio	0.15	0.31		0.09	0.64			0.10	0.07		0.48	
Uniform Delay, d1	3.2	3.7		3.1	5.2			22.5	22.4		24.1	
Progression Factor	1.00	1.00		0.86	0.68			1.00	1.00		1.00	
Incremental Delay, d2	2.0	0.3		0.2	0.9			0.2	0.1		1.4	
Delay (s)	5.2	4.1		2.9	4.4			22.7	22.5		25.5	
Level of Service	A	A		A	A			C	C		C	
Approach Delay (s)		4.1			4.4			22.5			25.5	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay	6.7			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.61											
Actuated Cycle Length (s)	65.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	53.0%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

Arterial Level of Service: EB Royal Gorge Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd Street	II	35	18.2	5.5	23.7	0.15	22.1	C
9th Street	II	35	51.0	68.2	119.2	0.49	14.9	E
15th St	II	30	61.3	13.1	74.4	0.48	23.4	C
Orchard Ave	II	45	44.6	19.8	64.4	0.56	31.2	B
Raynolds Ave	II	45	46.8	30.4	77.2	0.58	27.3	C
Dozier St	II	45	56.5	10.9	67.4	0.71	37.7	A
Justice Center Rd	II	50	40.6	5.5	46.1	0.56	44.0	A
MacKenzie	II	55	28.9	9.0	37.9	0.33	31.5	B
Total	II		347.9	162.4	510.3	3.87	27.3	C





















Arterial Level of Service: WB Royal Gorge Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
MacKenzie	II	55	25.9	29.2	55.1	0.27	17.4	D
Justice Center Rd	II	55	28.9	5.8	34.7	0.33	34.4	B
Dozier St	II	50	40.6	50.5	91.1	0.56	22.3	C
Raynolds Ave	II	45	56.5	77.2	133.7	0.71	19.0	D
Orchard Ave	II	45	46.8	19.4	66.2	0.58	31.8	B
15th St	II	35	57.4	39.9	97.3	0.56	20.6	D
9th Street	II	30	61.3	11.3	72.6	0.48	23.9	C
3rd Street	II	35	51.0	10.2	61.2	0.49	29.1	B
Total	II		368.4	243.5	611.9	3.99	23.5	C

HCM Signalized Intersection Capacity Analysis

1: Royal Gorge Blvd & MacKenzie























OTR Alternative 2
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	1085	150	31	1483	7	144	9	35	1	5	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (prot)	1752	3343	1553	1736	3343	1568		1700			1630	
Flt Permitted	0.13	1.00	1.00	0.12	1.00	1.00		0.74			0.99	
Satd. Flow (perm)	237	3343	1553	217	3343	1568		1303			1616	
Peak-hour factor, PHF	0.75	0.81	0.87	0.46	0.94	0.58	0.90	0.75	0.49	0.25	0.42	0.64
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	82	1340	186	73	1578	13	173	13	77	4	13	103
RTOR Reduction (vph)	0	0	87	0	0	7	0	23	0	0	80	0
Lane Group Flow (vph)	82	1340	99	73	1578	6	0	240	0	0	40	0
Heavy Vehicles (%)	3%	8%	4%	4%	8%	3%	4%	2%	4%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Actuated Green, G (s)	35.6	32.6	32.6	35.6	30.1	30.1		13.4			13.4	
Effective Green, g (s)	37.6	34.6	34.6	37.6	32.1	32.1		14.4			14.4	
Actuated g/C Ratio	0.58	0.53	0.53	0.58	0.49	0.49		0.22			0.22	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	289	1780	827	219	1651	774		289			358	
v/s Ratio Prot	0.03	c0.40		0.02	c0.47							
v/s Ratio Perm	0.14		0.06	0.17		0.00		c0.18			0.02	
v/c Ratio	0.28	0.75	0.12	0.33	0.96	0.01		0.83			0.11	
Uniform Delay, d1	10.9	11.9	7.6	17.3	15.8	8.4		24.1			20.2	
Progression Factor	0.61	0.61	0.61	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.4	2.5	0.2	0.9	13.9	0.0		17.5			0.1	
Delay (s)	7.1	9.7	4.9	18.2	29.7	8.4		41.7			20.3	
Level of Service	A	A	A	B	C	A		D			C	
Approach Delay (s)		9.0			29.0			41.7			20.3	
Approach LOS		A			C			D			C	
Intersection Summary												
HCM Average Control Delay			20.8			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			74.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Royal Gorge Blvd & Justice Center Rd

OTR Alternative 2
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	1245	134	20	1528	22	168	9	47	19	9	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	12	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.97	1.00
Satd. Flow (prot)	1752	3343	1463	1752	3343	1463		1765	1568		1796	1568
Flt Permitted	0.10	1.00	1.00	0.14	1.00	1.00		0.70	1.00		0.68	1.00
Satd. Flow (perm)	184	3343	1463	250	3343	1463		1295	1568		1260	1568
Peak-hour factor, PHF	0.89	0.90	0.82	0.56	0.91	0.79	0.69	0.45	0.65	0.59	0.45	0.79
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	69	1383	176	39	1679	30	263	22	78	35	22	56
RTOR Reduction (vph)	0	0	65	0	0	11	0	0	33	0	0	42
Lane Group Flow (vph)	69	1383	111	39	1679	19	0	285	45	0	57	14
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2		6	6		2	4		4	8		8
Actuated Green, G (s)	39.1	39.1	39.1	39.1	39.1	39.1		14.9	14.9		14.9	14.9
Effective Green, g (s)	40.1	41.1	41.1	40.1	41.1	41.1		15.9	15.9		15.9	15.9
Actuated g/C Ratio	0.62	0.63	0.63	0.62	0.63	0.63		0.24	0.24		0.24	0.24
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	114	2114	925	154	2114	925		317	384		308	384
v/s Ratio Prot		0.41			c0.50							
v/s Ratio Perm	0.37		0.08	0.16		0.01		c0.22	0.03		0.05	0.01
v/c Ratio	0.61	0.65	0.12	0.25	0.79	0.02		0.90	0.12		0.19	0.04
Uniform Delay, d1	7.6	7.5	4.8	5.7	8.8	4.5		23.8	19.1		19.4	18.7
Progression Factor	0.52	0.55	0.29	0.18	0.47	0.01		1.00	1.00		1.00	1.00
Incremental Delay, d2	6.5	1.2	0.2	0.4	1.5	0.0		26.4	0.1		0.3	0.0
Delay (s)	10.4	5.3	1.6	1.4	5.6	0.1		50.1	19.2		19.7	18.7
Level of Service	B	A	A	A	A	A		D	B		B	B
Approach Delay (s)		5.1			5.4			43.5			19.2	
Approach LOS		A			A			D			B	

Intersection Summary
























HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Royal Gorge Blvd & Dozier St

OTR Alternative 2
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	219	1106	61	24	1521	208	63	46	24	209	50	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568	1752	1748		1752	1845	1568
Flt Permitted	0.13	1.00	1.00	0.13	1.00	1.00	0.71	1.00		0.69	1.00	1.00
Satd. Flow (perm)	246	3343	1568	237	3343	1568	1309	1748		1277	1845	1568
Peak-hour factor, PHF	0.90	0.85	0.80	0.67	0.85	0.84	0.79	0.77	0.75	0.87	0.74	0.72
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	263	1301	82	39	1789	267	86	65	35	259	73	261
RTOR Reduction (vph)	0	0	37	0	0	140	0	27	0	0	0	93
Lane Group Flow (vph)	263	1301	45	39	1789	127	86	73	0	259	73	168
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	3%	3%	3%	3%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		4
Actuated Green, G (s)	36.0	34.0	34.0	36.0	29.0	29.0	13.0	13.0		13.0	13.0	13.0
Effective Green, g (s)	38.0	36.0	36.0	38.0	31.0	31.0	14.0	14.0		14.0	14.0	14.0
Actuated g/C Ratio	0.58	0.55	0.55	0.58	0.48	0.48	0.22	0.22		0.22	0.22	0.22
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	329	1852	868	208	1594	748	282	376		275	397	338
v/s Ratio Prot	0.10	c0.39		0.01	c0.54			0.04			0.04	
v/s Ratio Perm	0.37		0.03	0.10		0.08	0.07			c0.20		0.11
v/c Ratio	0.80	0.70	0.05	0.19	1.12	0.17	0.30	0.19		0.94	0.18	0.50
Uniform Delay, d1	24.4	10.6	6.7	7.4	17.0	9.7	21.4	20.9		25.1	20.8	22.4
Progression Factor	1.40	1.00	1.63	0.94	0.85	2.04	1.00	1.00		0.99	0.99	0.88
Incremental Delay, d2	8.1	1.4	0.1	0.3	61.0	0.3	0.6	0.3		38.7	0.2	1.2
Delay (s)	42.3	12.0	10.9	7.2	75.5	20.0	22.0	21.1		63.5	20.9	20.9
Level of Service	D	B	B	A	E	C	C	C		E	C	C
Approach Delay (s)		16.8			67.2			21.5			39.5	
Approach LOS		B			E			C			D	






















Intersection Summary

HCM Average Control Delay	43.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Royal Gorge Blvd & Reynolds Ave























OTR Alternative 2
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	1305	143	56	1578	116	106	75	35	88	68	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1807	1568		2002	
Flt Permitted	0.07	1.00	1.00	0.07	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (perm)	123	3343	1568	123	3343	1568		1807	1568		2002	
Peak-hour factor, PHF	0.25	0.95	0.89	0.70	0.91	0.66	0.72	0.54	0.51	0.85	0.81	0.42
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	117	1374	174	86	1734	190	159	150	74	112	91	44
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	117	1374	83	86	1734	190	0	309	74	0	241	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free	Split		
Protected Phases	5	2		1	6		3	3		4 8	4 8	
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	64.9	58.9	58.9	64.9	59.1	59.1		24.1	130.0		17.0	
Effective Green, g (s)	66.9	61.9	61.9	66.9	62.1	62.1		25.1	130.0		20.0	
Actuated g/C Ratio	0.51	0.48	0.48	0.51	0.48	0.48		0.19	1.00		0.15	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	149	1592	747	151	1597	749		349	1568		308	
v/s Ratio Prot	c0.04	0.41		0.03	c0.52			c0.17			c0.12	
v/s Ratio Perm	0.36		0.05	0.26		0.12			c0.05			
v/c Ratio	0.79	0.86	0.11	0.57	1.09	0.25		0.89	0.05		0.78	
Uniform Delay, d1	29.3	30.3	18.8	24.6	33.9	20.2		51.0	0.0		52.9	
Progression Factor	1.13	0.84	1.42	1.17	1.05	1.06		1.00	1.00		0.12	
Incremental Delay, d2	16.6	4.3	0.2	1.7	42.9	0.3		22.4	0.1		1.2	
Delay (s)	49.7	29.7	26.9	30.4	78.7	21.7		73.5	0.1		7.6	
Level of Service	D	C	C	C	E	C		E	A		A	
Approach Delay (s)		30.8			71.2			59.3			7.6	
Approach LOS		C			E			E			A	
Intersection Summary												
HCM Average Control Delay			50.9			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			73.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Royal Gorge Blvd & Orchard Ave

OTR Alternative 2
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	1277	11	15	1447	280	7	26	22	195	30	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1842	1568		1969	
Flt Permitted	0.06	1.00	1.00	0.09	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (perm)	119	3343	1568	173	3343	1568		1842	1568		1969	
Peak-hour factor, PHF	0.69	0.93	0.34	0.42	0.91	0.80	0.58	0.50	0.46	0.84	0.68	0.75
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	174	1373	35	39	1590	378	13	56	52	251	48	78
RTOR Reduction (vph)	0	0	16	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	174	1373	19	39	1590	378	0	69	52	0	370	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free	Split		
Protected Phases	5	2		1	6		3	3		4 8	4 8	
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	73.1	67.5	67.5	73.1	61.1	61.1		8.9	130.0		24.0	
Effective Green, g (s)	75.1	70.5	70.5	75.1	64.1	64.1		9.9	130.0		27.0	
Actuated g/C Ratio	0.58	0.54	0.54	0.58	0.49	0.49		0.08	1.00		0.21	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	232	1813	850	180	1648	773		140	1568		409	
v/s Ratio Prot	c0.07	0.41		0.01	c0.48			c0.04			c0.19	
v/s Ratio Perm	0.36		0.01	0.11		0.24			0.03			
v/c Ratio	0.75	0.76	0.02	0.22	0.96	0.49		0.49	0.03		0.90	
Uniform Delay, d1	35.7	23.1	13.8	17.4	31.9	22.0		57.6	0.0		50.2	
Progression Factor	1.06	0.73	0.54	0.30	0.48	0.34		1.00	1.00		0.11	
Incremental Delay, d2	10.4	2.4	0.0	0.1	2.3	0.2		2.7	0.0		2.9	
Delay (s)	48.2	19.3	7.5	5.3	17.7	7.8		60.4	0.0		8.6	
Level of Service	D	B	A	A	B	A		E	A		A	
Approach Delay (s)		22.2			15.6			34.4			8.6	
Approach LOS		C			B			C			A	

Intersection Summary






















HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Royal Gorge Blvd & 15th St

OTR Alternative 2
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	216	1164	60	4	1393	143	67	42	2	246	46	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (prot)	1752	3323		1770	3343	1538		2039		1665	1695	1568
Flt Permitted	0.07	1.00		0.10	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (perm)	137	3323		188	3343	1538		2039		1665	1695	1568
Peak-hour factor, PHF	0.84	0.96	0.79	1.00	0.94	0.87	0.64	0.62	0.25	0.85	0.82	0.90
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	278	1212	82	4	1482	178	113	73	9	313	61	415
RTOR Reduction (vph)	0	0	0	0	0	43	0	2	0	0	0	82
Lane Group Flow (vph)	278	1294	0	4	1482	135	0	193	0	185	189	333
Heavy Vehicles (%)	3%	8%	2%	2%	8%	5%	2%	2%	2%	3%	3%	3%
Turn Type	D.P+P			Perm		Perm	Split			Split		pm+ov
Protected Phases	5	2			6		3 8	3 8		4	4	5
Permitted Phases	6			6		6						4
Actuated Green, G (s)	70.8	75.8		52.8	52.8	52.8		19.9		17.3	17.3	35.3
Effective Green, g (s)	72.8	76.8		53.8	53.8	53.8		21.9		19.3	19.3	37.3
Actuated g/C Ratio	0.56	0.59		0.41	0.41	0.41		0.17		0.15	0.15	0.29
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0				6.0	6.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	313	1963		78	1383	636		343		247	252	498
v/s Ratio Prot	c0.13	0.39			c0.44			c0.09		0.11	c0.11	0.10
v/s Ratio Perm	0.37			0.02		0.09						0.11
v/c Ratio	0.89	0.66		0.05	1.07	0.21		0.56		0.75	0.75	0.67
Uniform Delay, d1	50.9	17.8		22.8	38.1	24.5		49.7		53.0	53.0	40.9
Progression Factor	0.89	0.72		0.57	0.40	0.34		0.16		1.00	1.00	1.00
Incremental Delay, d2	8.2	0.5		0.4	37.9	0.3		1.2		11.7	11.8	3.4
Delay (s)	53.6	13.3		13.4	53.3	8.5		8.9		64.8	64.9	44.3
Level of Service	D	B		B	D	A		A		E	E	D
Approach Delay (s)		20.5			48.4			8.9			54.0	
Approach LOS		C			D			A			D	

Intersection Summary
























HCM Average Control Delay	37.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: Royal Gorge Blvd & 9th Street




















OTR Alternative 2
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	996	159	409	1252	65	150	218	433	121	242	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	12	12	12	12	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1620	3343	1396	1560	3318		1687	1827	1509	1620	1705	1297
Flt Permitted	0.07	1.00	1.00	0.09	1.00		0.18	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	124	3343	1396	146	3318		323	1827	1509	297	1705	1297
Peak-hour factor, PHF	0.79	0.83	0.81	0.92	0.88	0.71	0.75	0.77	0.70	0.72	0.77	0.92
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	86	1200	212	480	1423	99	216	306	668	182	339	43
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	14	0	0	12
Lane Group Flow (vph)	86	1200	212	480	1518	0	216	306	654	182	339	31
Heavy Vehicles (%)	4%	8%	8%	8%	8%	4%	7%	4%	7%	4%	4%	4%
Parking (#/hr)												1
Turn Type	D.P+P		Free	D.P+P			D.P+P		pm+ov	D.P+P		Perm
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	2		Free	6			8		4	4		8
Actuated Green, G (s)	80.0	45.0	130.0	80.0	72.5		32.0	23.0	58.0	32.0	22.0	22.0
Effective Green, g (s)	80.0	46.0	130.0	80.0	73.5		32.0	24.0	58.0	32.0	23.0	23.0
Actuated g/C Ratio	0.62	0.35	1.00	0.62	0.57		0.25	0.18	0.45	0.25	0.18	0.18
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	163	1183	1396	471	1876		184	337	673	165	302	229
v/s Ratio Prot	0.03	c0.36		c0.27	0.46		c0.09	0.17	0.26	0.08	c0.20	
v/s Ratio Perm	0.29		c0.15	0.35			0.20		0.17	0.20		0.02
v/c Ratio	0.53	1.01	0.15	1.02	0.81		1.17	0.91	0.97	1.10	1.12	0.13
Uniform Delay, d1	19.5	42.0	0.0	40.1	22.6		45.4	51.9	35.2	45.5	53.5	45.1
Progression Factor	1.00	0.93	1.00	1.13	0.43		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	29.2	0.2	29.3	1.4		121.0	26.9	27.5	100.3	89.0	0.3
Delay (s)	22.4	68.3	0.2	74.4	11.1		166.3	78.8	62.7	145.8	142.5	45.4
Level of Service	C	E	A	E	B		F	E	E	F	F	D
Approach Delay (s)		56.0			26.3			85.6			136.1	
Approach LOS		E			C			F			F	
Intersection Summary												
HCM Average Control Delay			60.0			HCM Level of Service			E			
HCM Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			88.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Royal Gorge Blvd & 3rd Street

OTR Alternative 2
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	894	3	20	1328	81	9	3	24	36	1	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	12	11	11	12	16	12
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1711	3341		1711	3326			1558	1378		1697	
Flt Permitted	0.09	1.00		0.25	1.00			0.78	1.00		0.90	
Satd. Flow (perm)	160	3341		441	3326			1270	1378		1557	
Peak-hour factor, PHF	0.71	0.86	0.75	0.56	0.79	0.92	0.56	0.75	0.26	0.75	0.25	0.52
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	26	1040	4	39	1681	95	17	4	100	52	4	129
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	82	0	29	0
Lane Group Flow (vph)	26	1044	0	39	1770	0	0	21	18	0	156	0
Heavy Vehicles (%)	2%	8%	2%	2%	8%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)								0	0	0	0	0
Turn Type	Perm			Perm			Perm			Perm	Perm	
Protected Phases	2			6			8				4	
Permitted Phases	2			6			8			8	4	
Actuated Green, G (s)	44.0	44.0		44.0	44.0			11.0	11.0		11.0	
Effective Green, g (s)	45.0	45.0		45.0	45.0			12.0	12.0		12.0	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.18	0.18		0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	111	2313		305	2303			234	254		287	
v/s Ratio Prot	0.31			c0.53								
v/s Ratio Perm	0.16			0.09				0.02	0.01		c0.10	
v/c Ratio	0.23	0.45		0.13	0.77			0.09	0.07		0.55	
Uniform Delay, d1	3.7	4.5		3.4	6.6			22.0	21.9		24.0	
Progression Factor	1.00	1.00		0.76	1.23			1.00	1.00		1.00	
Incremental Delay, d2	4.9	0.6		0.5	1.6			0.2	0.1		2.1	
Delay (s)	8.6	5.1		3.1	9.6			22.1	22.0		26.1	
Level of Service	A	A		A	A			C	C		C	
Approach Delay (s)	5.2			9.5			22.0			26.1		
Approach LOS	A			A			C			C		
Intersection Summary												
HCM Average Control Delay	9.5			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	65.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	59.2%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

Arterial Level of Service: EB Royal Gorge Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd Street	II	35	18.2	4.8	23.0	0.15	22.8	C
9th Street	II	35	51.0	69.2	120.2	0.49	14.8	E
15th St	II	30	61.3	12.5	73.8	0.48	23.5	C
Orchard Ave	II	45	44.6	20.6	65.2	0.56	30.8	B
Raynolds Ave	II	45	46.8	29.6	76.4	0.58	27.5	C
Dozier St	II	45	56.5	6.8	63.3	0.71	40.2	A
Justice Center Rd	II	50	40.6	5.4	46.0	0.56	44.1	A
MacKenzie	II	55	28.9	6.8	35.7	0.33	33.4	B
Total	II		347.9	155.7	503.6	3.87	27.6	C






















Arterial Level of Service: WB Royal Gorge Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
MacKenzie	II	55	25.9	24.5	50.4	0.27	19.1	D
Justice Center Rd	II	55	28.9	6.0	34.9	0.33	34.2	B
Dozier St	II	50	40.6	26.9	67.5	0.56	30.1	B
Raynolds Ave	II	45	56.5	56.8	113.3	0.71	22.4	C
Orchard Ave	II	45	46.8	16.0	62.8	0.58	33.5	B
15th St	II	35	57.3	37.9	95.2	0.56	21.1	D
9th Street	II	30	61.3	37.3	98.6	0.48	17.6	D
3rd Street	II	35	51.0	6.7	57.7	0.49	30.9	B
Total	II		368.3	212.1	580.4	3.99	24.7	C

HCM Signalized Intersection Capacity Analysis

1: Royal Gorge Blvd & MacKenzie

























OTR Alternative 3
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	888	150	31	1404	7	144	9	35	1	5	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (prot)	1752	3343	1553	1736	3343	1568		1700			1630	
Flt Permitted	0.13	1.00	1.00	0.18	1.00	1.00		0.74			0.99	
Satd. Flow (perm)	237	3343	1553	329	3343	1568		1303			1616	
Peak-hour factor, PHF	0.75	0.81	0.87	0.46	0.94	0.58	0.90	0.75	0.49	0.25	0.42	0.64
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	82	1096	186	73	1494	13	173	13	77	4	13	103
RTOR Reduction (vph)	0	0	87	0	0	7	0	23	0	0	80	0
Lane Group Flow (vph)	82	1096	99	73	1494	6	0	240	0	0	40	0
Heavy Vehicles (%)	3%	8%	4%	4%	8%	3%	4%	2%	4%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Actuated Green, G (s)	35.6	32.6	32.6	35.6	30.1	30.1		13.4			13.4	
Effective Green, g (s)	37.6	34.6	34.6	37.6	32.1	32.1		14.4			14.4	
Actuated g/C Ratio	0.58	0.53	0.53	0.58	0.49	0.49		0.22			0.22	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	289	1780	827	277	1651	774		289			358	
v/s Ratio Prot	0.03	c0.33		0.02	c0.45							
v/s Ratio Perm	0.14		0.06	0.14		0.00		c0.18			0.02	
v/c Ratio	0.28	0.62	0.12	0.26	0.90	0.01		0.83			0.11	
Uniform Delay, d1	10.0	10.6	7.6	12.9	15.1	8.4		24.1			20.2	
Progression Factor	0.67	0.55	0.72	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.5	1.4	0.3	0.5	8.6	0.0		17.5			0.1	
Delay (s)	7.2	7.2	5.8	13.5	23.7	8.4		41.7			20.3	
Level of Service	A	A	A	B	C	A		D			C	
Approach Delay (s)		7.0			23.1			41.7			20.3	
Approach LOS		A			C			D			C	
Intersection Summary												
HCM Average Control Delay			17.9			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			71.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Royal Gorge Blvd & Justice Center Rd

OTR Alternative 3
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	57	1048	134	20	1449	22	168	9	47	19	9	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	12	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.97	1.00
Satd. Flow (prot)	1752	3343	1463	1752	3343	1463		1765	1568		1796	1568
Flt Permitted	0.10	1.00	1.00	0.19	1.00	1.00		0.70	1.00		0.70	1.00
Satd. Flow (perm)	187	3343	1463	351	3343	1463		1295	1568		1302	1568
Peak-hour factor, PHF	0.89	0.90	0.82	0.56	0.91	0.79	0.69	0.45	0.65	0.59	0.45	0.79
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	69	1164	176	39	1592	30	263	22	78	35	22	56
RTOR Reduction (vph)	0	0	66	0	0	11	0	0	34	0	0	42
Lane Group Flow (vph)	69	1164	110	39	1592	19	0	285	44	0	57	14
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2		6	6		2	4		4	8		8
Actuated Green, G (s)	38.5	38.5	38.5	38.5	38.5	38.5		15.5	15.5		15.5	15.5
Effective Green, g (s)	39.5	40.5	40.5	39.5	40.5	40.5		16.5	16.5		16.5	16.5
Actuated g/C Ratio	0.61	0.62	0.62	0.61	0.62	0.62		0.25	0.25		0.25	0.25
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	114	2083	912	213	2083	912		329	398		331	398
v/s Ratio Prot		0.35			c0.48							
v/s Ratio Perm	0.37		0.07	0.11		0.01		c0.22	0.03		0.04	0.01
v/c Ratio	0.61	0.56	0.12	0.18	0.76	0.02		0.87	0.11		0.17	0.04
Uniform Delay, d1	7.9	7.1	5.0	5.6	8.8	4.7		23.2	18.6		18.9	18.3
Progression Factor	0.78	0.62	0.63	0.21	0.49	0.02		1.00	1.00		1.00	1.00
Incremental Delay, d2	7.2	0.9	0.2	0.2	1.4	0.0		20.5	0.1		0.2	0.0
Delay (s)	13.3	5.3	3.3	1.4	5.7	0.1		43.7	18.7		19.2	18.3
Level of Service	B	A	A	A	A	A		D	B		B	B
Approach Delay (s)		5.4			5.5			38.3			18.7	
Approach LOS		A			A			D			B	

Intersection Summary
























HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Royal Gorge Blvd & Dozier St

























OTR Alternative 3
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	219	909	61	24	1442	208	63	46	24	209	50	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568	1752	1748		1752	1845	1568
Flt Permitted	0.13	1.00	1.00	0.19	1.00	1.00	0.71	1.00		0.69	1.00	1.00
Satd. Flow (perm)	246	3343	1568	358	3343	1568	1309	1748		1277	1845	1568
Peak-hour factor, PHF	0.90	0.85	0.80	0.67	0.85	0.84	0.79	0.77	0.75	0.87	0.74	0.72
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	263	1069	82	39	1696	267	86	65	35	259	73	261
RTOR Reduction (vph)	0	0	37	0	0	140	0	27	0	0	0	95
Lane Group Flow (vph)	263	1069	45	39	1696	127	86	73	0	259	73	166
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	3%	3%	3%	3%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		4
Actuated Green, G (s)	36.0	33.4	33.4	36.0	29.0	29.0	13.0	13.0		13.0	13.0	13.0
Effective Green, g (s)	38.0	35.4	35.4	38.0	31.0	31.0	14.0	14.0		14.0	14.0	14.0
Actuated g/C Ratio	0.58	0.54	0.54	0.58	0.48	0.48	0.22	0.22		0.22	0.22	0.22
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	329	1821	854	286	1594	748	282	376		275	397	338
v/s Ratio Prot	c0.10	0.32		0.01	c0.51			0.04			0.04	
v/s Ratio Perm	0.37		0.03	0.07		0.08	0.07			c0.20		0.11
v/c Ratio	0.80	0.59	0.05	0.14	1.06	0.17	0.30	0.19		0.94	0.18	0.49
Uniform Delay, d1	24.4	9.9	6.9	6.5	17.0	9.7	21.4	20.9		25.1	20.8	22.4
Progression Factor	1.44	0.66	1.24	0.91	0.87	2.10	1.00	1.00		0.99	0.99	0.88
Incremental Delay, d2	9.3	1.0	0.1	0.1	38.3	0.3	0.6	0.3		38.7	0.2	1.1
Delay (s)	44.5	7.5	8.7	6.1	53.0	20.6	22.0	21.1		63.5	20.9	20.8
Level of Service	D	A	A	A	D	C	C	C		E	C	C
Approach Delay (s)		14.5			47.8			21.5			39.5	
Approach LOS		B			D			C			D	
Intersection Summary												
HCM Average Control Delay			34.2			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			82.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: Royal Gorge Blvd & Raynolds Ave

OTR Alternative 3
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	27	1108	143	56	1499	116	106	75	35	88	68	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1807	1568		2002	
Flt Permitted	0.07	1.00	1.00	0.10	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (perm)	125	3343	1568	189	3343	1568		1807	1568		2002	
Peak-hour factor, PHF	0.25	0.95	0.89	0.70	0.91	0.66	0.72	0.54	0.51	0.85	0.81	0.42
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	117	1166	174	86	1647	190	159	150	74	112	91	44
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	117	1166	79	86	1647	190	0	309	74	0	241	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free	Split		
Protected Phases	5	2		1	6		3	3		4 8	4 8	
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	63.9	55.8	55.8	63.9	58.1	58.1		24.1	130.0		18.0	
Effective Green, g (s)	65.9	58.8	58.8	65.9	61.1	61.1		25.1	130.0		21.0	
Actuated g/C Ratio	0.51	0.45	0.45	0.51	0.47	0.47		0.19	1.00		0.16	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	148	1512	709	205	1571	737		349	1568		323	
v/s Ratio Prot	0.04	c0.35		0.03	c0.49			c0.17			c0.12	
v/s Ratio Perm	0.36		0.05	0.18		0.12			0.05			
v/c Ratio	0.79	0.77	0.11	0.42	1.05	0.26		0.89	0.05		0.75	
Uniform Delay, d1	29.4	29.9	20.5	44.7	34.5	20.8		51.0	0.0		52.0	
Progression Factor	1.25	0.87	0.47	0.80	0.79	0.83		1.00	1.00		0.10	
Incremental Delay, d2	19.7	2.9	0.2	0.6	29.5	0.4		22.4	0.1		0.9	
Delay (s)	56.5	29.1	9.8	36.4	56.7	17.7		73.5	0.1		6.0	
Level of Service	E	C	A	D	E	B		E	A		A	
Approach Delay (s)		29.0			51.9			59.3			6.0	
Approach LOS		C			D			E			A	

Intersection Summary

























HCM Average Control Delay	41.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Royal Gorge Blvd & Orchard Ave

OTR Alternative 3
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	111	1080	11	15	1368	280	7	26	22	195	30	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1842	1568		1969	
Flt Permitted	0.07	1.00	1.00	0.16	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (perm)	127	3343	1568	288	3343	1568		1842	1568		1969	
Peak-hour factor, PHF	0.69	0.93	0.34	0.42	0.91	0.80	0.58	0.50	0.46	0.84	0.68	0.75
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	174	1161	35	39	1503	378	13	56	52	251	48	78
RTOR Reduction (vph)	0	0	15	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	174	1161	20	39	1503	378	0	69	52	0	370	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free		Split	
Protected Phases	5	2		1	6		3	3			4 8	4 8
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	75.1	69.6	69.6	75.1	57.2	57.2		8.9	130.0		22.0	
Effective Green, g (s)	77.1	72.6	72.6	77.1	60.2	60.2		9.9	130.0		25.0	
Actuated g/C Ratio	0.59	0.56	0.56	0.59	0.46	0.46		0.08	1.00		0.19	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	312	1867	876	244	1548	726		140	1568		379	
v/s Ratio Prot	0.08	c0.35		0.01	c0.45			c0.04			c0.19	
v/s Ratio Perm	0.25		0.01	0.09		0.24			0.03			
v/c Ratio	0.56	0.62	0.02	0.16	0.97	0.52		0.49	0.03		0.98	
Uniform Delay, d1	46.3	19.4	12.8	13.7	34.0	24.7		57.6	0.0		52.2	
Progression Factor	1.02	0.96	1.30	0.32	0.28	0.27		1.00	1.00		0.13	
Incremental Delay, d2	1.9	1.3	0.0	0.1	6.5	0.7		2.7	0.0		9.0	
Delay (s)	49.2	19.8	16.7	4.5	16.2	7.3		60.4	0.0		15.5	
Level of Service	D	B	B	A	B	A		E	A		B	
Approach Delay (s)		23.5			14.2			34.4			15.5	
Approach LOS		C			B			C			B	

Intersection Summary






















HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Royal Gorge Blvd & 15th St

OTR Alternative 3
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	216	967	60	4	1314	143	67	42	2	246	46	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (prot)	1752	3319		1770	3343	1538		2039		1665	1695	1568
Flt Permitted	0.08	1.00		0.15	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (perm)	144	3319		271	3343	1538		2039		1665	1695	1568
Peak-hour factor, PHF	0.84	0.96	0.79	1.00	0.94	0.87	0.64	0.62	0.25	0.85	0.82	0.90
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	278	1007	82	4	1398	178	113	73	9	313	61	415
RTOR Reduction (vph)	0	0	0	0	0	45	0	2	0	0	0	140
Lane Group Flow (vph)	278	1089	0	4	1398	133	0	193	0	185	189	275
Heavy Vehicles (%)	3%	8%	2%	2%	8%	5%	2%	2%	2%	3%	3%	3%
Turn Type	D.P+P			Perm		Perm	Split			Split		pm+ov
Protected Phases	5	2			6		3 8	3 8		4	4	5
Permitted Phases	6			6		6						4
Actuated Green, G (s)	66.4	71.4		50.4	50.4	50.4		25.3		16.3	16.3	32.3
Effective Green, g (s)	68.4	72.4		51.4	51.4	51.4		27.3		18.3	18.3	34.3
Actuated g/C Ratio	0.53	0.56		0.40	0.40	0.40		0.21		0.14	0.14	0.26
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0				6.0	6.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	286	1848		107	1322	608		428		234	239	462
v/s Ratio Prot	c0.13	0.33			c0.42			c0.09		0.11	c0.11	0.08
v/s Ratio Perm	0.39			0.01		0.09						0.10
v/c Ratio	0.97	0.59		0.04	1.06	0.22		0.45		0.79	0.79	0.60
Uniform Delay, d1	52.8	19.0		24.1	39.3	26.0		44.8		54.0	54.0	41.8
Progression Factor	0.71	0.64		0.53	0.44	0.29		0.15		1.00	1.00	1.00
Incremental Delay, d2	27.7	0.6		0.2	32.8	0.3		0.6		16.5	16.2	2.1
Delay (s)	65.0	12.7		13.0	50.3	8.0		7.3		70.5	70.2	43.9
Level of Service	E	B		B	D	A		A		E	E	D
Approach Delay (s)		23.4			45.4			7.3			56.4	
Approach LOS		C			D			A			E	

Intersection Summary
























HCM Average Control Delay	38.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: Royal Gorge Blvd & 9th Street




















OTR Alternative 3
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	799	159	409	1173	65	150	218	433	121	242	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	12	12	12	12	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1620	3343	1396	1560	3316		1687	1827	1509	1620	1705	1297
Flt Permitted	0.07	1.00	1.00	0.11	1.00		0.18	1.00	1.00	0.25	1.00	1.00
Satd. Flow (perm)	123	3343	1396	178	3316		325	1827	1509	425	1705	1297
Peak-hour factor, PHF	0.79	0.83	0.81	0.92	0.88	0.71	0.75	0.77	0.70	0.72	0.77	0.92
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	86	963	212	480	1333	99	216	306	668	182	339	43
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	43	0	0	13
Lane Group Flow (vph)	86	963	212	480	1428	0	216	306	625	182	339	30
Heavy Vehicles (%)	4%	8%	8%	8%	8%	4%	7%	4%	7%	4%	4%	4%
Parking (#/hr)												1
Turn Type	D.P+P		Free	D.P+P			D.P+P		pm+ov	D.P+P		Perm
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	2		Free	6			8		4	4		8
Actuated Green, G (s)	70.3	37.0	130.0	70.3	55.3		41.7	29.1	62.4	41.7	28.7	28.7
Effective Green, g (s)	70.3	38.0	130.0	70.3	56.3		41.7	30.1	62.4	41.7	29.7	29.7
Actuated g/C Ratio	0.54	0.29	1.00	0.54	0.43		0.32	0.23	0.48	0.32	0.23	0.23
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	239	977	1396	450	1436		240	423	724	252	390	296
v/s Ratio Prot	0.04	0.29		c0.27	0.43		c0.09	0.17	0.22	0.07	c0.20	
v/s Ratio Perm	0.15		c0.15	c0.30			0.20		0.19	0.16		0.02
v/c Ratio	0.36	0.99	0.15	1.07	0.99		0.90	0.72	0.86	0.72	0.87	0.10
Uniform Delay, d1	48.4	45.7	0.0	39.5	36.7		36.2	46.1	30.0	35.1	48.3	39.6
Progression Factor	0.95	0.96	1.00	0.52	0.60		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	25.2	0.2	46.4	13.7		32.8	6.0	10.4	9.8	18.2	0.2
Delay (s)	46.7	69.1	0.2	67.1	35.7		69.0	52.1	40.4	44.8	66.5	39.8
Level of Service	D	E	A	E	D		E	D	D	D	E	D
Approach Delay (s)		56.0			43.6			48.6			57.5	
Approach LOS		E			D			D			E	
Intersection Summary												
HCM Average Control Delay			49.6			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			82.6%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Royal Gorge Blvd & 3rd Street

OTR Alternative 3
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	697	3	20	1249	81	9	3	24	36	1	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	12	11	11	12	16	12
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1711	3341		1711	3325			1558	1378		1697	
Flt Permitted	0.10	1.00		0.33	1.00			0.78	1.00		0.90	
Satd. Flow (perm)	173	3341		590	3325			1264	1378		1556	
Peak-hour factor, PHF	0.71	0.86	0.75	0.56	0.79	0.92	0.56	0.75	0.26	0.75	0.25	0.52
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	26	810	4	39	1581	95	17	4	100	52	4	129
RTOR Reduction (vph)	0	1	0	0	6	0	0	0	82	0	36	0
Lane Group Flow (vph)	26	813	0	39	1670	0	0	21	18	0	149	0
Heavy Vehicles (%)	2%	8%	2%	2%	8%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)								0	0	0	0	0
Turn Type	Perm			Perm			Perm			Perm	Perm	
Protected Phases	2			6			8				4	
Permitted Phases	2			6			8			8	4	
Actuated Green, G (s)	44.1	44.1		44.1	44.1			10.9	10.9		10.9	
Effective Green, g (s)	45.1	45.1		45.1	45.1			11.9	11.9		11.9	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.18	0.18		0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	120	2318		409	2307			231	252		285	
v/s Ratio Prot		0.24			c0.50							
v/s Ratio Perm	0.15			0.07				0.02	0.01		c0.10	
v/c Ratio	0.22	0.35		0.10	0.72			0.09	0.07		0.52	
Uniform Delay, d1	3.6	4.0		3.3	6.1			22.1	22.0		24.0	
Progression Factor	1.00	1.00		0.95	0.90			1.00	1.00		1.00	
Incremental Delay, d2	4.1	0.4		0.2	0.9			0.2	0.1		1.7	
Delay (s)	7.7	4.4		3.3	6.4			22.2	22.1		25.7	
Level of Service	A	A		A	A			C	C		C	
Approach Delay (s)		4.5			6.3			22.1			25.7	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay	7.7			HCM Level of Service					A			
HCM Volume to Capacity ratio	0.68											
Actuated Cycle Length (s)	65.0			Sum of lost time (s)					8.0			
Intersection Capacity Utilization	57.0%			ICU Level of Service					B			
Analysis Period (min)	15											
c Critical Lane Group												

Arterial Level of Service: EB Royal Gorge Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
3rd Street	II	35	18.2	4.1	22.3	0.15	23.5	C
9th Street	II	35	51.0	51.5	102.5	0.49	17.4	D
15th St	II	30	61.3	14.8	76.1	0.48	22.8	C
Orchard Ave	II	45	44.6	28.0	72.6	0.56	27.7	C
Raynolds Ave	II	45	46.8	29.8	76.6	0.58	27.5	C
Dozier St	II	45	56.5	5.2	61.7	0.71	41.2	A
Justice Center Rd	II	50	40.6	5.9	46.5	0.56	43.6	A
MacKenzie	II	55	28.9	7.3	36.2	0.33	33.0	B
Total	II		347.9	146.6	494.5	3.87	28.1	B





















Arterial Level of Service: WB Royal Gorge Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
MacKenzie	II	55	25.9	14.5	40.4	0.27	23.8	C
Justice Center Rd	II	55	28.9	3.8	32.7	0.33	36.5	A
Dozier St	II	50	40.6	16.6	57.2	0.56	35.5	A
Raynolds Ave	II	45	56.5	36.6	93.1	0.71	27.3	C
Orchard Ave	II	45	46.8	13.6	60.4	0.58	34.8	B
15th St	II	35	57.4	18.7	76.1	0.56	26.4	C
9th Street	II	30	61.3	12.2	73.5	0.48	23.6	C
3rd Street	II	35	51.0	2.6	53.6	0.49	33.2	B
Total	II		368.4	118.6	487.0	3.99	29.5	B

HCM Signalized Intersection Capacity Analysis

1: Royal Gorge Blvd & MacKenzie























OTR Alternative 4
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	756	150	31	1043	7	144	9	35	1	5	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (prot)	1752	3343	1553	1736	3343	1568		1700			1630	
Flt Permitted	0.16	1.00	1.00	0.23	1.00	1.00		0.74			0.99	
Satd. Flow (perm)	294	3343	1553	424	3343	1568		1303			1616	
Peak-hour factor, PHF	0.75	0.81	0.87	0.46	0.94	0.58	0.90	0.75	0.49	0.25	0.42	0.64
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	82	933	186	73	1110	13	173	13	77	4	13	103
RTOR Reduction (vph)	0	0	90	0	0	7	0	23	0	0	80	0
Lane Group Flow (vph)	82	933	96	73	1110	6	0	240	0	0	40	0
Heavy Vehicles (%)	3%	8%	4%	4%	8%	3%	4%	2%	4%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		
Actuated Green, G (s)	35.6	31.4	31.4	35.6	30.1	30.1		13.4			13.4	
Effective Green, g (s)	37.6	33.4	33.4	37.6	32.1	32.1		14.4			14.4	
Actuated g/C Ratio	0.58	0.51	0.51	0.58	0.49	0.49		0.22			0.22	
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	316	1718	798	350	1651	774		289			358	
v/s Ratio Prot	0.03	c0.28		0.02	c0.33							
v/s Ratio Perm	0.12		0.06	0.10		0.00		c0.18			0.02	
v/c Ratio	0.26	0.54	0.12	0.21	0.67	0.01		0.83			0.11	
Uniform Delay, d1	7.4	10.7	8.2	11.0	12.5	8.4		24.1			20.2	
Progression Factor	0.77	0.59	1.02	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.4	1.1	0.3	0.3	2.2	0.0		17.5			0.1	
Delay (s)	6.1	7.4	8.6	11.3	14.7	8.4		41.7			20.3	
Level of Service	A	A	A	B	B	A		D			C	
Approach Delay (s)		7.5			14.4			41.7			20.3	
Approach LOS		A			B			D			C	
Intersection Summary												
HCM Average Control Delay			14.3			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			61.9%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Royal Gorge Blvd & Justice Center Rd

OTR Alternative 4
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	916	134	20	1088	22	168	9	47	19	9	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	12	12	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.97	1.00
Satd. Flow (prot)	1752	3343	1463	1752	3343	1463		1765	1568		1796	1568
Flt Permitted	0.18	1.00	1.00	0.24	1.00	1.00		0.70	1.00		0.70	1.00
Satd. Flow (perm)	334	3343	1463	435	3343	1463		1295	1568		1302	1568
Peak-hour factor, PHF	0.89	0.90	0.82	0.56	0.91	0.79	0.69	0.45	0.65	0.59	0.45	0.79
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	69	1018	176	39	1196	30	263	22	78	35	22	56
RTOR Reduction (vph)	0	0	66	0	0	11	0	0	34	0	0	42
Lane Group Flow (vph)	69	1018	110	39	1196	19	0	285	44	0	57	14
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2		6	6		2	4		4	8		8
Actuated Green, G (s)	38.5	38.5	38.5	38.5	38.5	38.5		15.5	15.5		15.5	15.5
Effective Green, g (s)	39.5	40.5	40.5	39.5	40.5	40.5		16.5	16.5		16.5	16.5
Actuated g/C Ratio	0.61	0.62	0.62	0.61	0.62	0.62		0.25	0.25		0.25	0.25
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	203	2083	912	264	2083	912		329	398		331	398
v/s Ratio Prot		0.30			c0.36							
v/s Ratio Perm	0.21		0.07	0.09		0.01		c0.22	0.03		0.04	0.01
v/c Ratio	0.34	0.49	0.12	0.15	0.57	0.02		0.87	0.11		0.17	0.04
Uniform Delay, d1	6.3	6.6	5.0	5.5	7.2	4.7		23.2	18.6		18.9	18.3
Progression Factor	0.75	0.71	1.50	0.32	0.37	0.06		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.7	0.2	0.2	0.9	0.0		20.5	0.1		0.2	0.0
Delay (s)	5.6	5.4	7.7	1.9	3.5	0.3		43.7	18.7		19.2	18.3
Level of Service	A	A	A	A	A	A		D	B		B	B
Approach Delay (s)		5.8			3.4			38.3			18.7	
Approach LOS		A			A			D			B	

Intersection Summary
























HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Royal Gorge Blvd & Dozier St

OTR Alternative 4
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	219	777	61	24	1081	208	63	46	24	209	50	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568	1752	1748		1752	1845	1568
Flt Permitted	0.16	1.00	1.00	0.25	1.00	1.00	0.71	1.00		0.69	1.00	1.00
Satd. Flow (perm)	294	3343	1568	453	3343	1568	1309	1748		1277	1845	1568
Peak-hour factor, PHF	0.90	0.85	0.80	0.67	0.85	0.84	0.79	0.77	0.75	0.87	0.74	0.72
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	263	914	82	39	1272	267	86	65	35	259	73	261
RTOR Reduction (vph)	0	0	38	0	0	160	0	27	0	0	0	201
Lane Group Flow (vph)	263	914	44	39	1272	107	86	73	0	259	73	60
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	3%	3%	3%	3%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		4
Actuated Green, G (s)	35.1	32.5	32.5	35.1	24.1	24.1	13.9	13.9		13.9	13.9	13.9
Effective Green, g (s)	37.1	34.5	34.5	37.1	26.1	26.1	14.9	14.9		14.9	14.9	14.9
Actuated g/C Ratio	0.57	0.53	0.53	0.57	0.40	0.40	0.23	0.23		0.23	0.23	0.23
Clearance Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	437	1774	832	331	1342	630	300	401		293	423	359
v/s Ratio Prot	0.11	c0.27		0.01	c0.38			0.04			0.04	
v/s Ratio Perm	0.23		0.03	0.06		0.07	0.07			c0.20		0.04
v/c Ratio	0.60	0.52	0.05	0.12	0.95	0.17	0.29	0.18		0.88	0.17	0.17
Uniform Delay, d1	20.0	9.8	7.4	6.5	18.8	12.5	20.7	20.1		24.2	20.1	20.1
Progression Factor	1.13	0.56	0.81	0.44	0.65	0.80	1.00	1.00		0.99	0.99	0.65
Incremental Delay, d2	1.7	0.8	0.1	0.1	12.9	0.5	0.5	0.2		25.4	0.2	0.2
Delay (s)	24.4	6.3	6.0	3.0	25.2	10.5	21.2	20.4		49.4	20.1	13.3
Level of Service	C	A	A	A	C	B	C	C		D	C	B
Approach Delay (s)		10.1			22.2			20.7			29.9	
Approach LOS		B			C			C			C	

























Intersection Summary

HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: Royal Gorge Blvd & Raynolds Ave

OTR Alternative 4
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	27	976	143	56	1138	116	106	75	35	88	68	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1807	1568		2002	
Flt Permitted	0.08	1.00	1.00	0.12	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (perm)	144	3343	1568	227	3343	1568		1807	1568		2002	
Peak-hour factor, PHF	0.25	0.95	0.89	0.70	0.91	0.66	0.72	0.54	0.51	0.85	0.81	0.42
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	117	1027	174	86	1251	190	159	150	74	112	91	44
RTOR Reduction (vph)	0	0	102	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	117	1027	72	86	1251	190	0	309	74	0	241	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free		Split	
Protected Phases	5	2		1	6		3	3			4 8	4 8
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	58.5	50.5	50.5	58.5	50.3	50.3		24.5	130.0		23.0	
Effective Green, g (s)	60.5	53.5	53.5	60.5	53.3	53.3		25.5	130.0		26.0	
Actuated g/C Ratio	0.47	0.41	0.41	0.47	0.41	0.41		0.20	1.00		0.20	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	181	1376	645	211	1371	643		354	1568		400	
v/s Ratio Prot	0.05	c0.31		0.03	c0.37			c0.17			c0.12	
v/s Ratio Perm	0.26		0.05	0.16		0.12			0.05			
v/c Ratio	0.65	0.75	0.11	0.41	0.91	0.30		0.87	0.05		0.60	
Uniform Delay, d1	27.5	32.5	23.6	44.6	36.2	25.7		50.7	0.0		47.3	
Progression Factor	0.79	0.87	2.39	0.79	0.78	0.83		1.00	1.00		0.11	
Incremental Delay, d2	6.5	3.0	0.3	0.8	7.3	0.7		20.4	0.1		1.3	
Delay (s)	28.1	31.3	56.8	36.0	35.6	22.2		71.1	0.1		6.5	
Level of Service	C	C	E	D	D	C		E	A		A	
Approach Delay (s)		34.4			33.9			57.3			6.5	
Approach LOS		C			C			E			A	

Intersection Summary






















HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Royal Gorge Blvd & Orchard Ave

OTR Alternative 4
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	948	11	15	1007	280	7	26	22	195	30	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (prot)	1752	3343	1568	1752	3343	1568		1842	1568		1969	
Flt Permitted	0.15	1.00	1.00	0.19	1.00	1.00		0.99	1.00		0.97	
Satd. Flow (perm)	273	3343	1568	358	3343	1568		1842	1568		1969	
Peak-hour factor, PHF	0.69	0.93	0.34	0.42	0.91	0.80	0.58	0.50	0.46	0.84	0.68	0.75
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	174	1019	35	39	1107	378	13	56	52	251	48	78
RTOR Reduction (vph)	0	0	16	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	174	1019	19	39	1107	378	0	69	52	0	370	0
Heavy Vehicles (%)	3%	8%	3%	3%	8%	3%	3%	2%	3%	3%	2%	3%
Turn Type	D.P+P		Perm	D.P+P		Perm	Split		Free	Split		
Protected Phases	5	2		1	6		3	3		4 8	4 8	
Permitted Phases	6		2	2		6			Free			
Actuated Green, G (s)	73.1	67.5	67.5	73.1	62.4	62.4		8.9	130.0		24.0	
Effective Green, g (s)	75.1	70.5	70.5	75.1	65.4	65.4		9.9	130.0		27.0	
Actuated g/C Ratio	0.58	0.54	0.54	0.58	0.50	0.50		0.08	1.00		0.21	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0		5.0				
Vehicle Extension (s)	3.5	3.0	3.0	3.0	3.0	3.0		3.0				
Lane Grp Cap (vph)	291	1813	850	278	1682	789		140	1568		409	
v/s Ratio Prot	c0.05	0.30		0.01	c0.33			c0.04			c0.19	
v/s Ratio Perm	0.29		0.01	0.07		0.24			0.03			
v/c Ratio	0.60	0.56	0.02	0.14	0.66	0.48		0.49	0.03		0.90	
Uniform Delay, d1	17.3	19.6	13.8	13.7	24.0	21.1		57.6	0.0		50.2	
Progression Factor	1.03	0.76	0.83	0.32	0.25	0.27		1.00	1.00		0.11	
Incremental Delay, d2	3.0	1.1	0.0	0.1	1.0	1.0		2.7	0.0		2.9	
Delay (s)	20.8	16.0	11.5	4.5	6.9	6.7		60.4	0.0		8.6	
Level of Service	C	B	B	A	A	A		E	A		A	
Approach Delay (s)		16.5			6.8			34.4			8.6	
Approach LOS		B			A			C			A	

Intersection Summary






















HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Royal Gorge Blvd & 15th St

OTR Alternative 4
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	216	835	60	4	953	143	67	42	2	246	46	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (prot)	1752	3315		1770	3343	1538		2039		1665	1695	1568
Flt Permitted	0.15	1.00		0.22	1.00	1.00		0.97		0.95	0.97	1.00
Satd. Flow (perm)	275	3315		408	3343	1538		2039		1665	1695	1568
Peak-hour factor, PHF	0.84	0.96	0.79	1.00	0.94	0.87	0.64	0.62	0.25	0.85	0.82	0.90
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	278	870	82	4	1014	178	113	73	9	313	61	415
RTOR Reduction (vph)	0	0	0	0	0	63	0	2	0	0	0	93
Lane Group Flow (vph)	278	952	0	4	1014	115	0	193	0	185	189	322
Heavy Vehicles (%)	3%	8%	2%	2%	8%	5%	2%	2%	2%	3%	3%	3%
Turn Type	D.P+P			Perm		Perm	Split			Split		pm+ov
Protected Phases	5	2			6		3 8	3 8		4	4	5
Permitted Phases	6			6		6						4
Actuated Green, G (s)	73.8	78.8		55.8	55.8	55.8		17.9		16.3	16.3	34.3
Effective Green, g (s)	75.8	79.8		56.8	56.8	56.8		19.9		18.3	18.3	36.3
Actuated g/C Ratio	0.58	0.61		0.44	0.44	0.44		0.15		0.14	0.14	0.28
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0				6.0	6.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	376	2035		178	1461	672		312		234	239	486
v/s Ratio Prot	c0.11	0.29			0.30			c0.09		0.11	c0.11	0.10
v/s Ratio Perm	c0.32			0.01		0.08						0.11
v/c Ratio	0.74	0.47		0.02	0.69	0.17		0.62		0.79	0.79	0.66
Uniform Delay, d1	36.9	13.6		20.8	29.6	22.3		51.5		54.0	54.0	41.4
Progression Factor	0.92	0.90		0.61	0.50	0.30		0.22		1.00	1.00	1.00
Incremental Delay, d2	4.1	0.4		0.2	2.0	0.4		1.1		16.5	16.2	3.4
Delay (s)	38.2	12.6		12.8	16.7	7.2		12.3		70.5	70.2	44.8
Level of Service	D	B		B	B	A		B		E	E	D
Approach Delay (s)		18.4			15.3			12.3			56.9	
Approach LOS		B			B			B			E	

Intersection Summary
























HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

7: Royal Gorge Blvd & 9th Street




















OTR Alternative 4
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	667	159	409	812	65	150	218	433	121	242	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	12	12	12	12	12	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1620	3343	1396	1560	3306		1687	1827	1509	1620	1705	1297
Flt Permitted	0.17	1.00	1.00	0.12	1.00		0.16	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	293	3343	1396	193	3306		275	1827	1509	452	1705	1297
Peak-hour factor, PHF	0.79	0.83	0.81	0.92	0.88	0.71	0.75	0.77	0.70	0.72	0.77	0.92
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	86	804	212	480	923	99	216	306	668	182	339	43
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	34	0	0	13
Lane Group Flow (vph)	86	804	212	480	1016	0	216	306	634	182	339	30
Heavy Vehicles (%)	4%	8%	8%	8%	8%	4%	7%	4%	7%	4%	4%	4%
Parking (#/hr)												1
Turn Type	D.P+P		Free	D.P+P			D.P+P		pm+ov	D.P+P		Perm
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases	2		Free	6			8		4	4		8
Actuated Green, G (s)	70.8	34.1	130.0	70.8	62.7		41.2	30.2	66.9	41.2	27.2	27.2
Effective Green, g (s)	70.8	35.1	130.0	70.8	63.7		41.2	31.2	66.9	41.2	28.2	28.2
Actuated g/C Ratio	0.54	0.27	1.00	0.54	0.49		0.32	0.24	0.51	0.32	0.22	0.22
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	242	903	1396	491	1620		239	438	777	242	370	281
v/s Ratio Prot	0.02	0.24		c0.28	0.31		c0.10	0.17	0.23	0.06	c0.20	
v/s Ratio Perm	0.17		c0.15	c0.26			0.19		0.19	0.17		0.02
v/c Ratio	0.36	0.89	0.15	0.98	0.63		0.90	0.70	0.82	0.75	0.92	0.11
Uniform Delay, d1	17.0	45.6	0.0	37.6	24.4		36.7	45.1	26.4	35.7	49.7	40.8
Progression Factor	0.93	0.96	1.00	0.83	0.64		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	12.7	0.2	28.7	1.3		33.5	4.8	6.6	12.4	26.7	0.2
Delay (s)	16.7	56.5	0.2	59.9	16.9		70.2	49.9	33.0	48.1	76.4	41.0
Level of Service	B	E	A	E	B		E	D	C	D	E	D
Approach Delay (s)		42.6			30.6			44.1			64.6	
Approach LOS		D			C			D			E	
Intersection Summary												
HCM Average Control Delay			41.7			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			79.0%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Royal Gorge Blvd & 3rd Street

OTR Alternative 4
Summer Weekend Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	565	3	20	888	81	9	3	24	36	1	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	12	11	11	12	16	12
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1711	3341		1711	3318			1558	1378		1697	
Flt Permitted	0.20	1.00		0.40	1.00			0.74	1.00		0.90	
Satd. Flow (perm)	356	3341		713	3318			1198	1378		1550	
Peak-hour factor, PHF	0.71	0.86	0.75	0.56	0.79	0.92	0.56	0.75	0.26	0.75	0.25	0.52
Growth Factor (vph)	108%	100%	108%	108%	100%	108%	108%	108%	108%	108%	108%	108%
Adj. Flow (vph)	26	657	4	39	1124	95	17	4	100	52	4	129
RTOR Reduction (vph)	0	1	0	0	8	0	0	0	83	0	91	0
Lane Group Flow (vph)	26	660	0	39	1211	0	0	21	17	0	94	0
Heavy Vehicles (%)	2%	8%	2%	2%	8%	2%	2%	2%	2%	2%	2%	2%
Parking (#/hr)								0	0	0	0	0
Turn Type	Perm			Perm			Perm			Perm	Perm	
Protected Phases	2			6			8				4	
Permitted Phases	2			6			8			8	4	
Actuated Green, G (s)	45.1	45.1		45.1	45.1			9.9	9.9		9.9	
Effective Green, g (s)	46.1	46.1		46.1	46.1			10.9	10.9		10.9	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17	0.17		0.17	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	0.2	0.2		0.2	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	252	2370		506	2353			201	231		260	
v/s Ratio Prot	0.20			c0.37								
v/s Ratio Perm	0.07			0.05				0.02	0.01		c0.06	
v/c Ratio	0.10	0.28		0.08	0.51			0.10	0.07		0.36	
Uniform Delay, d1	3.0	3.4		2.9	4.3			22.9	22.8		24.0	
Progression Factor	1.00	1.00		0.55	0.43			1.00	1.00		1.00	
Incremental Delay, d2	0.8	0.3		0.2	0.6			0.2	0.1		0.9	
Delay (s)	3.8	3.7		1.8	2.5			23.1	22.9		24.8	
Level of Service	A	A		A	A			C	C		C	
Approach Delay (s)	3.7			2.5			23.0			24.8		
Approach LOS	A			A			C			C		
Intersection Summary												
HCM Average Control Delay	5.8			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.49											
Actuated Cycle Length (s)	65.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	47.0%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O G St to E/O E St
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	867	vph	1002	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	246		285	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	509	pcphpl	589	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		509	pcphpl	589	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		11.3	pc/mi/ln	13.1	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O E St to E/O Teller
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	867	vph	1002	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	246		285	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	509	pcphpl	589	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		509	pcphpl	589	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		11.3	pc/mi/ln	13.1	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O Teller to W/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	659	vph	762	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	187		216	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	387	pcphpl	448	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		387	pcphpl	448	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		A	
Density, D		8.6	pc/mi/ln	10.0	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: W/O 291 to E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		496	vph	574	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		141		163	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		291	pcphpl	337	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		291	pcphpl	337	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		A	
Density, D		6.5	pc/mi/ln	7.5	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	318	vph	368	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	90		105	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	187	pcphpl	216	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		187	pcphpl	216	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		A	
Density, D		4.2	pc/mi/ln	4.8	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O G St to E/O E St
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 1A

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		1342	vph	1541	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		381		438	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		789	pcphpl	906	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		789	pcphpl	906	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		17.5	pc/mi/ln	20.1	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O E St to E/O Teller
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 1A

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		1631	vph	1776	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		463		505	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		959	pcphpl	1044	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		959	pcphpl	1044	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		C		C	
Density, D		21.3	pc/mi/ln	23.2	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O Teller to W/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 1A

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		1134	vph	1301	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		322		370	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		666	pcphpl	765	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		666	pcphpl	765	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		14.8	pc/mi/ln	17.0	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: W/O 291 to E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 1A

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		971	vph	1113	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		276		316	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		571	pcphpl	654	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		571	pcphpl	654	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		12.7	pc/mi/ln	14.5	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

-----OPERATIONAL ANALYSIS-----

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 1A

-----FREE-FLOW SPEED-----

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

-----VOLUME-----

	Direction	1		2	
Volume, V		763	vph	907	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		217		258	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		448	pcphpl	533	pcphpl

-----RESULTS-----

	Direction	1		2	
Flow rate, vp		448	pcphpl	533	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		B	
Density, D		10.0	pc/mi/ln	11.8	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O G St to E/O E St
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 1D

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	1214	vph	1492	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	345		424	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	713	pcphpl	877	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		713	pcphpl	877	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		15.8	pc/mi/ln	19.5	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
 Agency/Co: AECOM
 Date: 4/2/2010
 Analysis Period: Summer Midday Peak Period
 Highway: US 50
 From/To: E/O E St to E/O Teller
 Jurisdiction: Salida
 Analysis Year: 2013
 Project ID: Over The River - Alt 1D

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		1214	vph	1492	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		345		424	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		713	pcphpl	877	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		713	pcphpl	877	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		15.8	pc/mi/ln	19.5	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O Teller to W/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 1D

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	1006	vph	1252	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	286		356	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	591	pcphpl	736	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		591	pcphpl	736	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		13.1	pc/mi/ln	16.4	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: W/O 291 to E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 1D

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	843	vph	1064	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	239		302	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	495	pcphpl	625	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		495	pcphpl	625	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		B	
Density, D		11.0	pc/mi/ln	13.9	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 1D

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		665	vph	858	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		189		244	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		391	pcphpl	504	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		391	pcphpl	504	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		B	
Density, D		8.7	pc/mi/ln	11.2	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O G St to E/O E St
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 2

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		1321	vph	1636	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		375		465	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		776	pcphpl	962	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		776	pcphpl	962	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		17.2	pc/mi/ln	21.4	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O E St to E/O Teller
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 2

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	1321	vph	1636	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	375		465	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	776	pcphpl	962	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		776	pcphpl	962	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		17.2	pc/mi/ln	21.4	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O Teller to W/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 2

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	1113	vph	1396	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	316		397	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	654	pcphpl	820	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		654	pcphpl	820	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		14.5	pc/mi/ln	18.2	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: W/O 291 to E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 2

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		950	vph	1208	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		270		343	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		558	pcphpl	710	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		558	pcphpl	710	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		12.4	pc/mi/ln	15.8	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
 Agency/Co: AECOM
 Date: 4/2/2010
 Analysis Period: Summer Midday Peak Period
 Highway: US 50
 From/To: E/O 291
 Jurisdiction: Salida
 Analysis Year: 2013
 Project ID: Over The River - Alt 2

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		772	vph	1002	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		219		285	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		453	pcphpl	589	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		453	pcphpl	589	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		B	
Density, D		10.1	pc/mi/ln	13.1	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O G St to E/O E St
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 3

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		1314	vph	1609	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		373		457	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		772	pcphpl	946	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		772	pcphpl	946	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		17.2	pc/mi/ln	21.0	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O E St to E/O Teller
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 3

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	1314	vph	1609	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	373		457	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	772	pcphpl	946	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		772	pcphpl	946	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		17.2	pc/mi/ln	21.0	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O Teller to W/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 3

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	1106	vph	1369	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	314		389	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	650	pcphpl	805	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		650	pcphpl	805	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		14.4	pc/mi/ln	17.9	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: W/O 291 to E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 3

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		943	vph	1181	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		268		336	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		554	pcphpl	694	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		554	pcphpl	694	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		12.3	pc/mi/ln	15.4	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 3

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		765	vph	975	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		217		277	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		449	pcphpl	573	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		449	pcphpl	573	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		B	
Density, D		10.0	pc/mi/ln	12.7	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O G St to E/O E St
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 4

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	1107	vph	1381	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	314		392	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	650	pcphpl	812	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		650	pcphpl	812	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		14.4	pc/mi/ln	18.0+	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O E St to E/O Teller
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 4

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	1107	vph	1381	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	314		392	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	650	pcphpl	812	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		650	pcphpl	812	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		C	
Density, D		14.4	pc/mi/ln	18.0+	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
 Agency/Co: AECOM
 Date: 4/2/2010
 Analysis Period: Summer Midday Peak Period
 Highway: US 50
 From/To: E/O Teller to W/O 291
 Jurisdiction: Salida
 Analysis Year: 2013
 Project ID: Over The River - Alt 4

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		899	vph	1141	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		255		324	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		528	pcphpl	670	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		528	pcphpl	670	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		11.7	pc/mi/ln	14.9	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: W/O 291 to E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 4

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	736	vph	953	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	209		271	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	432	pcphpl	560	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		432	pcphpl	560	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		B	
Density, D		9.6	pc/mi/ln	12.4	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - Alt 4

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		558	vph	747	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		159		212	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		328	pcphpl	439	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		328	pcphpl	439	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		A	
Density, D		7.3	pc/mi/ln	9.8	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O G St to E/O E St
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	1156	vph	1237	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	328		351	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	679	pcphpl	727	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		679	pcphpl	727	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		15.1	pc/mi/ln	16.2	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O E St to E/O Teller
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	867	vph	1002	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	246		285	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	509	pcphpl	589	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		509	pcphpl	589	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		B		B	
Density, D		11.3	pc/mi/ln	13.1	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O Teller to W/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	659	vph	762	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	187		216	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	387	pcphpl	448	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		387	pcphpl	448	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		A	
Density, D		8.6	pc/mi/ln	10.0	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: W/O 291 to E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	6.0	ft	6.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	0		0	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	45.0	mph	45.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.0	mph	0.0	mph
Free-flow speed	45.0	mph	45.0	mph

VOLUME

Direction	1		2	
Volume, V	496	vph	574	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	141		163	
Trucks and buses	7	%	7	%
Recreational vehicles	0	%	0	%
Terrain type	Level		Level	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	1.5		1.5	
Recreational vehicles PCE, ER	1.2		1.2	
Heavy vehicle adjustment, fHV	0.966		0.966	
Flow rate, vp	291	pcphpl	337	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		291	pcphpl	337	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		A	
Density, D		6.5	pc/mi/ln	7.5	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone:
E-mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: MDH
Agency/Co: AECOM
Date: 4/2/2010
Analysis Period: Summer Midday Peak Period
Highway: US 50
From/To: E/O 291
Jurisdiction: Salida
Analysis Year: 2013
Project ID: Over The River - No Build

FREE-FLOW SPEED

	Direction	1		2	
Lane width		12.0	ft	12.0	ft
Lateral clearance:					
Right edge		6.0	ft	6.0	ft
Left edge		6.0	ft	6.0	ft
Total lateral clearance		12.0	ft	12.0	ft
Access points per mile		0		0	
Median type		Divided		Divided	
Free-flow speed:		Base		Base	
FFS or BFFS		45.0	mph	45.0	mph
Lane width adjustment, FLW		0.0	mph	0.0	mph
Lateral clearance adjustment, FLC		0.0	mph	0.0	mph
Median type adjustment, FM		0.0	mph	0.0	mph
Access points adjustment, FA		0.0	mph	0.0	mph
Free-flow speed		45.0	mph	45.0	mph

VOLUME

	Direction	1		2	
Volume, V		318	vph	368	vph
Peak-hour factor, PHF		0.88		0.88	
Peak 15-minute volume, v15		90		105	
Trucks and buses		7	%	7	%
Recreational vehicles		0	%	0	%
Terrain type		Level		Level	
Grade		0.00	%	0.00	%
Segment length		0.00	mi	0.00	mi
Number of lanes		2		2	
Driver population adjustment, fP		1.00		1.00	
Trucks and buses PCE, ET		1.5		1.5	
Recreational vehicles PCE, ER		1.2		1.2	
Heavy vehicle adjustment, fHV		0.966		0.966	
Flow rate, vp		187	pcphpl	216	pcphpl

RESULTS

	Direction	1		2	
Flow rate, vp		187	pcphpl	216	pcphpl
Free-flow speed, FFS		45.0	mph	45.0	mph
Avg. passenger-car travel speed, S		45.0	mph	45.0	mph
Level of service, LOS		A		A	
Density, D		4.2	pc/mi/ln	4.8	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 SB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 Traffic Without Project
 East/West Street: US 50
 North/South Street: US 285 SB
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		84	185			190	232
Peak-Hour Factor, PHF		0.88	0.88			0.88	0.88
Hourly Flow Rate, HFR		95	210			215	263
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					200		94
Peak Hour Factor, PHF					0.88		0.88
Hourly Flow Rate, HFR					227		106
Percent Heavy Vehicles					5		5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1		1
Configuration					L		R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	95					227		106
C(m) (vph)	1069					410		817
v/c	0.09					0.55		0.13
95% queue length	0.29					3.26		0.45
Control Delay	8.7					24.1		10.1
LOS	A					C		B
Approach Delay							19.7	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 Traffic Without Project
 East/West Street: US 50
 North/South Street: US 285 NB
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume			127	161	203	138	
Peak-Hour Factor, PHF			0.88	0.88	0.88	0.88	
Hourly Flow Rate, HFR			144	182	230	156	
Percent Heavy Vehicles			--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?			Yes				
Lanes			1	1	1	1	
Configuration			T	R	L	T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		147		274			
Peak Hour Factor, PHF		0.88		0.88			
Hourly Flow Rate, HFR		167		311			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes		1	1				
Configuration		L	R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)	230	167			311			
C(m) (vph)	1420	310			895			
v/c	0.16	0.54			0.35			
95% queue length	0.58	3.00			1.56			
Control Delay	8.0	29.4			11.1			
LOS	A	D			B			
Approach Delay				17.5				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 1A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 Traffic Without Project
 East/West Street: US 50
 North/South Street: CR 1A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R		4 L	5 T	6 R
Volume		9	227	22		9	243	20
Peak-Hour Factor, PHF		0.90	0.90	0.90		0.85	0.85	0.85
Hourly Flow Rate, HFR		10	252	24		10	285	23
Percent Heavy Vehicles		5	--	--		5	--	--
Median Type/Storage		Undivided			/			
RT Channelized?						No		
Lanes		0	1	0		0	1	1
Configuration		LTR				LT R		
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Northbound				Southbound		
		7 L	8 T	9 R		10 L	11 T	12 R
Volume		25	2	2		13	2	10
Peak Hour Factor, PHF		0.73	0.73	0.73		0.69	0.69	0.69
Hourly Flow Rate, HFR		34	2	2		18	2	14
Percent Heavy Vehicles		0	0	0		5	0	5
Percent Grade (%)		0				0		
Flared Approach: Exists?/Storage		No			/	No		
Lanes		0	1	0		0	1	0
Configuration		LTR				LTR		

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config	LTR	LT		LTR			LTR	
v (vph)	10	10		38			34	
C(m) (vph)	1236	1270		410			500	
v/c	0.01	0.01		0.09			0.07	
95% queue length	0.02	0.02		0.30			0.22	
Control Delay	7.9	7.9		14.7			12.7	
LOS	A	A		B			B	
Approach Delay				14.7			12.7	
Approach LOS				B			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 69
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 Traffic Without Project
 East/West Street: US 50
 North/South Street: SH 69
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		200	20		26	199	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		235	23		31	242	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		8		25			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		9		30			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		31		39				
C(m) (vph)		1289		694				
v/c		0.02		0.06				
95% queue length		0.07		0.18				
Control Delay		7.9		10.5				
LOS		A		B				
Approach Delay				10.5				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 Traffic Without Project
 East/West Street: US 50
 North/South Street: CR 3
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		143	9		43	190	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		168	10		52	231	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		2		61			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		2		73			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		52		75				
C(m) (vph)		1380		847				
v/c		0.04		0.09				
95% queue length		0.12		0.29				
Control Delay		7.7		9.7				
LOS		A		A				
Approach Delay				9.7				
Approach LOS				A				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 9
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 Traffic Without Project
 East/West Street: US 50
 North/South Street: SH 9
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		16	268			258	116
Peak-Hour Factor, PHF		0.88	0.88			0.91	0.91
Hourly Flow Rate, HFR		18	304			283	127
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?						Yes	
Lanes		0	2			1	1
Configuration		LT T				T	R
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					79		10
Peak Hour Factor, PHF					0.78		0.78
Hourly Flow Rate, HFR					101		12
Percent Heavy Vehicles					5		5
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	18						113	
C(m) (vph)	1255						525	
v/c	0.01						0.22	
95% queue length	0.04						0.81	
Control Delay	7.9						13.7	
LOS	A						B	
Approach Delay							13.7	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 Traffic Without Project
 East/West Street: US 50
 North/South Street: CR 3A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		5	274	50	206	427	9
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.82	0.88	0.88
Hourly Flow Rate, HFR		5	294	53	251	485	10
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	2	1	1	2	0
Configuration		L	T	R	L	T	TR
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		51	4	122	5	8	0
Peak Hour Factor, PHF		0.80	0.80	0.80	0.56	0.56	0.56
Hourly Flow Rate, HFR		63	4	152	8	14	0
Percent Heavy Vehicles		5	0	5	5	0	5
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage					/		
Lanes		0	1	1	0	1	0
Configuration		LT		R	LTR		

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R		LTR	
v (vph)	5	251	67		152		22	
C(m) (vph)	1053	1187	134		889		112	
v/c	0.00	0.21	0.50		0.17		0.20	
95% queue length	0.01	0.80	2.34		0.61		0.69	
Control Delay	8.4	8.8	56.1		9.9		44.8	
LOS	A	A	F		A		E	
Approach Delay				24.0			44.8	
Approach LOS				C			E	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 EB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 Traffic Without Project
 East/West Street: US 50 EB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		114	63		30	211	
Peak-Hour Factor, PHF		0.83	0.83		0.87	0.87	
Hourly Flow Rate, HFR		137	75		34	242	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					289		7
Peak Hour Factor, PHF					0.89		0.89
Hourly Flow Rate, HFR					324		7
Percent Heavy Vehicles					5		0
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT				L		R
v (vph)		34				324		7
C(m) (vph)		1429				523		802
v/c		0.02				0.62		0.01
95% queue length		0.07				4.18		0.03
Control Delay		7.6				22.4		9.5
LOS		A				C		A
Approach Delay							22.2	
Approach LOS							C	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 WB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 Traffic Without Project
 East/West Street: US 50 WB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound				Southbound		
	Movement	1	2	3		4	5	6
		L	T	R		L	T	R
Volume		4	398				180	435
Peak-Hour Factor, PHF		0.86	0.86				0.86	0.86
Hourly Flow Rate, HFR		4	462				209	505
Percent Heavy Vehicles		5	--	--			--	--
Median Type/Storage		Undivided			/			
RT Channelized?						Yes		
Lanes		0	1				1	1
Configuration		LT				T R		
Upstream Signal?		No				No		

Minor Street:	Approach	Westbound				Eastbound		
	Movement	7	8	9		10	11	12
		L	T	R		L	T	R
Volume		60		48				
Peak Hour Factor, PHF		0.85		0.85				
Hourly Flow Rate, HFR		70		56				
Percent Heavy Vehicles		5		5				
Percent Grade (%)			0				0	
Flared Approach: Exists?/Storage					/			
Lanes		1		1				
Configuration		L		R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound				
Movement	1	4		7	8	9		10	11	12
Lane Config	LT			L		R				
v (vph)	4			70		56				
C(m) (vph)	1344			291		594				
v/c	0.00			0.24		0.09				
95% queue length	0.01			0.92		0.31				
Control Delay	7.7			21.2		11.7				
LOS	A			C		B				
Approach Delay					17.0					
Approach LOS					C					

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 SB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1A
 East/West Street: US 50
 North/South Street: US 285 SB
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		84	397			217	460
Peak-Hour Factor, PHF		0.88	0.88			0.88	0.88
Hourly Flow Rate, HFR		95	451			246	522
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					388		94
Peak Hour Factor, PHF					0.88		0.88
Hourly Flow Rate, HFR					440		106
Percent Heavy Vehicles					5		5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1		1
Configuration					L		R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	95					440		106
C(m) (vph)	833					276		785
v/c	0.11					1.59		0.14
95% queue length	0.38					26.68		0.47
Control Delay	9.9					316.8		10.3
LOS	A					F		B
Approach Delay							257.3	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1A
 East/West Street: US 50
 North/South Street: US 285 NB
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		127	232		603	138	
Peak-Hour Factor, PHF		0.88	0.88		0.88	0.88	
Hourly Flow Rate, HFR		144	263		685	156	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		Yes					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		166		529			
Peak Hour Factor, PHF		0.88		0.88			
Hourly Flow Rate, HFR		188		601			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes		1	1				
Configuration		L	R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		685	188		601			
C(m) (vph)		1420	54		895			
v/c		0.48	3.48		0.67			
95% queue length		2.72	20.23		5.35			
Control Delay		9.9	1275		16.8			
LOS		A	F		C			
Approach Delay				316.7				
Approach LOS				F				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 1A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1A
 East/West Street: US 50
 North/South Street: CR 1A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R		4 L	5 T	6 R
Volume		9	698	22		9	776	20
Peak-Hour Factor, PHF		0.90	0.90	0.90		0.85	0.85	0.85
Hourly Flow Rate, HFR		10	775	24		10	912	23
Percent Heavy Vehicles		5	--	--		5	--	--
Median Type/Storage		Undivided			/			
RT Channelized?						No		
Lanes		0	1	0		0	1	1
Configuration		LTR				LT R		
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Northbound				Southbound		
		7 L	8 T	9 R		10 L	11 T	12 R
Volume		25	2	2		13	2	10
Peak Hour Factor, PHF		0.73	0.73	0.73		0.69	0.69	0.69
Hourly Flow Rate, HFR		34	2	2		18	2	14
Percent Heavy Vehicles		0	0	0		5	0	5
Percent Grade (%)		0				0		
Flared Approach: Exists?/Storage		No			/	No		
Lanes		0	1	0		0	1	0
Configuration		LTR				LTR		

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config	LTR	LT		LTR			LTR	
v (vph)	10	10		38			34	
C(m) (vph)	720	811		65			96	
v/c	0.01	0.01		0.58			0.35	
95% queue length	0.04	0.04		2.45			1.39	
Control Delay	10.1	9.5		119.6			61.8	
LOS	B	A		F			F	
Approach Delay				119.6			61.8	
Approach LOS				F			F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 69
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1A
 East/West Street: US 50
 North/South Street: SH 69
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		849	20		26	1046	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		998	23		31	1275	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		8		25			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		9		30			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		31		39				
C(m) (vph)		668		115				
v/c		0.05		0.34				
95% queue length		0.15		1.35				
Control Delay		10.7		51.6				
LOS		B		F				
Approach Delay				51.6				
Approach LOS				F				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1A
 East/West Street:
 North/South Street: CR 3
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		778	9		43	1102	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		915	10		52	1343	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		2		61			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		2		73			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		52		75				
C(m) (vph)		727		266				
v/c		0.07		0.28				
95% queue length		0.23		1.13				
Control Delay		10.3		23.8				
LOS		B		C				
Approach Delay				23.8				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 9
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1A
 East/West Street: US 50
 North/South Street: SH 9
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		63	856			1168	116
Peak-Hour Factor, PHF		0.88	0.88			0.91	0.91
Hourly Flow Rate, HFR		71	972			1283	127
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?						Yes	
Lanes		0	2			1	1
Configuration		LT T				T	R
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					124		12
Peak Hour Factor, PHF					0.78		0.78
Hourly Flow Rate, HFR					158		15
Percent Heavy Vehicles					5		5
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	71						173	
C(m) (vph)	521						53	
v/c	0.14						3.26	
95% queue length	0.47						18.51	
Control Delay	13.0						1182	
LOS	B						F	
Approach Delay							1182	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1A
 East/West Street: US 50
 North/South Street: CR 3A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		5	930	50	206	0	0
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.82	0.88	0.88
Hourly Flow Rate, HFR		5	999	53	251	0	0
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	2	1	1	2	0
Configuration		L	T	R	L	T	TR
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		51	4	122	5	8	0
Peak Hour Factor, PHF		0.80	0.80	0.80	0.56	0.56	0.56
Hourly Flow Rate, HFR		63	4	152	8	14	0
Percent Heavy Vehicles		5	0	5	5	0	5
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage					/		
Lanes		0	1	1	0	1	0
Configuration		LT		R	LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R		LTR	
v (vph)	5	251	67		152		22	
C(m) (vph)	1600	640	48		560		75	
v/c	0.00	0.39	1.40		0.27		0.29	
95% queue length	0.01	1.86	6.34		1.09		1.07	
Control Delay	7.3	14.2	403.7		13.8		71.8	
LOS	A	B	F		B		F	
Approach Delay				133.1			71.8	
Approach LOS				F			F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 EB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1A
 East/West Street: US 50 EB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume			114	63	30	211	
Peak-Hour Factor, PHF			0.83	0.83	0.87	0.87	
Hourly Flow Rate, HFR			137	75	34	242	
Percent Heavy Vehicles			--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes			1	0	0	1	
Configuration			TR		LT		
Upstream Signal?			No		No		

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					501		7
Peak Hour Factor, PHF					0.89		0.89
Hourly Flow Rate, HFR					562		7
Percent Heavy Vehicles					5		0
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT				L		R
v (vph)		34				562		7
C(m) (vph)		1429				523		802
v/c		0.02				1.07		0.01
95% queue length		0.07				17.16		0.03
Control Delay		7.6				88.7		9.5
LOS		A				F		A
Approach Delay							87.8	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 WB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1A
 East/West Street: US 50 WB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		4	610			180	766
Peak-Hour Factor, PHF		0.86	0.86			0.86	0.86
Hourly Flow Rate, HFR		4	709			209	890
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?						Yes	
Lanes		0	1			1	1
Configuration		LT				T	R
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		60		48			
Peak Hour Factor, PHF		0.85		0.85			
Hourly Flow Rate, HFR		70		56			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes		1		1			
Configuration		L		R			

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT		L		R			
v (vph)	4		70		56			
C(m) (vph)	1344		159		429			
v/c	0.00		0.44		0.13			
95% queue length	0.01		2.00		0.45			
Control Delay	7.7		44.3		14.6			
LOS	A		E		B			
Approach Delay				31.1				
Approach LOS				D				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 SB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1B
 East/West Street: US 50
 North/South Street: US 285 SB
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		84	401			216	449
Peak-Hour Factor, PHF		0.88	0.88			0.88	0.88
Hourly Flow Rate, HFR		95	455			245	510
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					392		94
Peak Hour Factor, PHF					0.88		0.88
Hourly Flow Rate, HFR					445		106
Percent Heavy Vehicles					5		5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	95					445		106
C(m) (vph)	842					275		786
v/c	0.11					1.62		0.13
95% queue length	0.38					27.35		0.47
Control Delay	9.8					327.1		10.3
LOS	A					F		B
Approach Delay							266.2	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1B
 East/West Street: US 50
 North/South Street: US 285 NB
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		127	233		611	138	
Peak-Hour Factor, PHF		0.88	0.88		0.88	0.88	
Hourly Flow Rate, HFR		144	264		694	156	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		Yes					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		165		517			
Peak Hour Factor, PHF		0.88		0.88			
Hourly Flow Rate, HFR		187		587			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes		1	1				
Configuration		L	R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		694	187		587			
C(m) (vph)		1420	52		895			
v/c		0.49	3.60		0.66			
95% queue length		2.78	20.33		5.05			
Control Delay		9.9	1332		16.3			
LOS		A	F		C			
Approach Delay				334.1				
Approach LOS				F				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 1A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1B
 East/West Street: US 50
 North/South Street: CR 1A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		9	707	22	9	752	20
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.85	0.85	0.85
Hourly Flow Rate, HFR		10	785	24	10	884	23
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		0	1	0	0	1	1
Configuration		LTR			LT R		
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		25	2	2	13	2	10
Peak Hour Factor, PHF		0.73	0.73	0.73	0.69	0.69	0.69
Hourly Flow Rate, HFR		34	2	2	18	2	14
Percent Heavy Vehicles		0	0	0	5	0	5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		No /
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LT		LTR			LTR	
v (vph)	10	10		38			34	
C(m) (vph)	738	804		67			99	
v/c	0.01	0.01		0.57			0.34	
95% queue length	0.04	0.04		2.38			1.35	
Control Delay	9.9	9.5		113.7			59.3	
LOS	A	A		F			F	
Approach Delay				113.7			59.3	
Approach LOS				F			F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 69
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1B
 East/West Street: US 50
 North/South Street: SH 69
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		842	20		26	995	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		990	23		31	1213	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		8		25			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		9		30			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		31		39				
C(m) (vph)		673		123				
v/c		0.05		0.32				
95% queue length		0.14		1.25				
Control Delay		10.6		47.3				
LOS		B		E				
Approach Delay				47.3				
Approach LOS				E				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1B
 East/West Street: US 50
 North/South Street: CR 3
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		766	9		43	1045	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		901	10		52	1274	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		2		61			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		2		73			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		52		75				
C(m) (vph)		735		277				
v/c		0.07		0.27				
95% queue length		0.23		1.07				
Control Delay		10.3		22.8				
LOS		B		C				
Approach Delay				22.8				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 9
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1B
 East/West Street: US 50
 North/South Street: SH 9
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		60	847			1111	116
Peak-Hour Factor, PHF		0.88	0.88			0.91	0.91
Hourly Flow Rate, HFR		68	962			1220	127
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?						Yes	
Lanes		0	2			1	1
Configuration		LT T				T	R
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					121		12
Peak Hour Factor, PHF					0.78		0.78
Hourly Flow Rate, HFR					155		15
Percent Heavy Vehicles					5		5
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	68						170	
C(m) (vph)	551						61	
v/c	0.12						2.79	
95% queue length	0.42						17.31	
Control Delay	12.5						951.5	
LOS	B						F	
Approach Delay							951.5	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1B
 East/West Street: US 50
 North/South Street: CR 3A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R		4 L	5 T	6 R
Volume		5	951	50		206	0	0
Peak-Hour Factor, PHF		0.93	0.93	0.93		0.82	0.88	0.88
Hourly Flow Rate, HFR		5	1022	53		251	0	0
Percent Heavy Vehicles		5	--	--		5	--	--
Median Type/Storage		Undivided			/			
RT Channelized?		No						
Lanes		1	2	1		1	2	0
Configuration		L	T	R		L	T	TR
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Northbound				Southbound		
		7 L	8 T	9 R		10 L	11 T	12 R
Volume		51	4	122		5	8	0
Peak Hour Factor, PHF		0.80	0.80	0.80		0.56	0.56	0.56
Hourly Flow Rate, HFR		63	4	152		8	14	0
Percent Heavy Vehicles		5	0	5		5	0	5
Percent Grade (%)		0				0		
Flared Approach: Exists?/Storage					/	No		
Lanes		0	1	1		0	1	0
Configuration		LT		R		LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound				Southbound		
			1	4	7		8	9	10
Movement	1	4	7	8	9		10	11	12
Lane Config	L	L	LT	R	R		LTR		
v (vph)	5	251	67		152		22		
C(m) (vph)	1600	627	45		552		72		
v/c	0.00	0.40	1.49		0.28		0.31		
95% queue length	0.01	1.92	6.57		1.12		1.12		
Control Delay	7.3	14.5	451.3		14.0		75.6		
LOS	A	B	F		B		F		
Approach Delay				147.8			75.6		
Approach LOS				F			F		

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 EB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1B
 East/West Street: US 50 EB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		114	63		30	211	
Peak-Hour Factor, PHF		0.83	0.83		0.87	0.87	
Hourly Flow Rate, HFR		137	75		34	242	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					499		7
Peak Hour Factor, PHF					0.89		0.89
Hourly Flow Rate, HFR					560		7
Percent Heavy Vehicles					5		0
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT				L		R
v (vph)		34				560		7
C(m) (vph)		1429				523		802
v/c		0.02				1.07		0.01
95% queue length		0.07				16.99		0.03
Control Delay		7.6				87.6		9.5
LOS		A				F		A
Approach Delay							86.6	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 WB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1B
 East/West Street: US 50 WB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound				Southbound		
	Movement	1	2	3		4	5	6
		L	T	R		L	T	R
Volume		4	608				180	779
Peak-Hour Factor, PHF		0.86	0.86				0.86	0.86
Hourly Flow Rate, HFR		4	706				209	905
Percent Heavy Vehicles		5	--	--			--	--
Median Type/Storage		Undivided			/			
RT Channelized?						Yes		
Lanes		0	1				1	1
Configuration		LT				T R		
Upstream Signal?		No				No		

Minor Street:	Approach	Westbound				Eastbound		
	Movement	7	8	9		10	11	12
		L	T	R		L	T	R
Volume		60		48				
Peak Hour Factor, PHF		0.85		0.85				
Hourly Flow Rate, HFR		70		56				
Percent Heavy Vehicles		5		5				
Percent Grade (%)			0				0	
Flared Approach: Exists?/Storage					/			
Lanes		1		1				
Configuration		L		R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound				Eastbound		
Movement	1	4	7	8	9		10	11	12
Lane Config	LT		L		R				
v (vph)	4		70		56				
C(m) (vph)	1344		158		431				
v/c	0.00		0.44		0.13				
95% queue length	0.01		2.02		0.44				
Control Delay	7.7		44.8		14.6				
LOS	A		E		B				
Approach Delay				31.4					
Approach LOS				D					

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 SB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1D
 East/West Street: US 50
 North/South Street: US 285 SB
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		84	356			217	456
Peak-Hour Factor, PHF		0.88	0.88			0.88	0.88
Hourly Flow Rate, HFR		95	404			246	518
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					352		94
Peak Hour Factor, PHF					0.88		0.88
Hourly Flow Rate, HFR					400		106
Percent Heavy Vehicles					5		5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	95					400		106
C(m) (vph)	836					293		785
v/c	0.11					1.37		0.14
95% queue length	0.38					20.64		0.47
Control Delay	9.9					219.0		10.3
LOS	A					F		B
Approach Delay							175.3	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1D
 East/West Street: US 50
 North/South Street: US 285 NB
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		127	218		525	138	
Peak-Hour Factor, PHF		0.88	0.88		0.88	0.88	
Hourly Flow Rate, HFR		144	247		596	156	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		Yes					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		166		525			
Peak Hour Factor, PHF		0.88		0.88			
Hourly Flow Rate, HFR		188		596			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes		1	1				
Configuration		L	R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		596	188		596			
C(m) (vph)		1420	78		895			
v/c		0.42	2.41		0.67			
95% queue length		2.13	17.73		5.24			
Control Delay		9.4	756.7		16.7			
LOS		A	F		C			
Approach Delay				194.1				
Approach LOS				F				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 1A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1D
 East/West Street: US 50
 North/South Street: CR 1A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1	2	3		4	5	6
		L	T	R		L	T	R
Volume		9	606	22		9	768	20
Peak-Hour Factor, PHF		0.90	0.90	0.90		0.85	0.85	0.85
Hourly Flow Rate, HFR		10	673	24		10	903	23
Percent Heavy Vehicles		5	--	--		5	--	--
Median Type/Storage		Undivided			/			
RT Channelized?						No		
Lanes		0	1	0		0	1	1
Configuration		LTR				LT R		
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Northbound				Southbound		
		7	8	9		10	11	12
		L	T	R		L	T	R
Volume		25	2	2		13	2	10
Peak Hour Factor, PHF		0.73	0.73	0.73		0.69	0.69	0.69
Hourly Flow Rate, HFR		34	2	2		18	2	14
Percent Heavy Vehicles		0	0	0		5	0	5
Percent Grade (%)		0				0		
Flared Approach: Exists?/Storage		No			/	No		
Lanes		0	1	0		0	1	0
Configuration		LTR				LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
			7	8	9	10	11	12
Movement	1	4						
Lane Config	LTR	LT		LTR			LTR	
v (vph)	10	10	38			34		
C(m) (vph)	726	885	78			113		
v/c	0.01	0.01	0.49			0.30		
95% queue length	0.04	0.03	2.03			1.16		
Control Delay	10.0+	9.1	88.8			50.0+		
LOS	B	A	F			F		
Approach Delay			88.8			50.0+		
Approach LOS			F			F		

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
Agency/Co.:
Date Performed: 12/17/2009
Analysis Time Period: Weekend Mid-Day Peak
Intersection: US 50 at SH 69
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2013
Project ID: 2013 - Alternative 1D
East/West Street: US 50
North/South Street: SH 69
Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		715	20		26	897	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		841	23		31	1093	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		8		25			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		9		30			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		31		39				
C(m) (vph)		766		171				
v/c		0.04		0.23				
95% queue length		0.13		0.84				
Control Delay		9.9		32.2				
LOS		A		D				
Approach Delay				32.2				
Approach LOS				D				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1D
 East/West Street: US 50
 North/South Street: CR 3
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		528	9		43	917	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		621	10		52	1118	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		2		61			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		2		73			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		52		75				
C(m) (vph)		937		420				
v/c		0.06		0.18				
95% queue length		0.18		0.64				
Control Delay		9.1		15.4				
LOS		A		C				
Approach Delay				15.4				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 9
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1D
 East/West Street: US 50
 North/South Street: SH 9
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		53	616			983	116
Peak-Hour Factor, PHF		0.88	0.88			0.91	0.91
Hourly Flow Rate, HFR		60	700			1080	127
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?						Yes	
Lanes		0	2			1	1
Configuration		LT T				T	R
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					115		12
Peak Hour Factor, PHF					0.78		0.78
Hourly Flow Rate, HFR					147		15
Percent Heavy Vehicles					5		5
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	60						162	
C(m) (vph)	624						97	
v/c	0.10						1.67	
95% queue length	0.32						12.85	
Control Delay	11.4						417.9	
LOS	B						F	
Approach Delay							417.9	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1D
 East/West Street: US 50
 North/South Street: CR 3A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		5	695	50	206	0	0
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.82	0.88	0.88
Hourly Flow Rate, HFR		5	747	53	251	0	0
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	2	1	1	2	0
Configuration		L	T	R	L	T	TR
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		51	4	122	5	8	0
Peak Hour Factor, PHF		0.80	0.80	0.80	0.56	0.56	0.56
Hourly Flow Rate, HFR		63	4	152	8	14	0
Percent Heavy Vehicles		5	0	5	5	0	5
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage					/		
Lanes		0	1	1	0	1	0
Configuration		LT		R	LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
			1	4	7	8	9	10
			L	L	LT	R		LTR
v (vph)	5	251	67			152		22
C(m) (vph)	1600	800	85			661		117
v/c	0.00	0.31	0.79			0.23		0.19
95% queue length	0.01	1.35	4.01			0.88		0.66
Control Delay	7.3	11.5	131.2			12.1		42.8
LOS	A	B	F			B		E
Approach Delay					48.5			42.8
Approach LOS					E			E

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 EB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1D
 East/West Street: US 50 EB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		114	63		30	211	
Peak-Hour Factor, PHF		0.83	0.83		0.87	0.87	
Hourly Flow Rate, HFR		137	75		34	242	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					410		7
Peak Hour Factor, PHF					0.89		0.89
Hourly Flow Rate, HFR					460		7
Percent Heavy Vehicles					5		0
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT				L		R
v (vph)		34				460		7
C(m) (vph)		1429				523		802
v/c		0.02				0.88		0.01
95% queue length		0.07				9.77		0.03
Control Delay		7.6				43.6		9.5
LOS		A				E		A
Approach Delay							43.1	
Approach LOS							E	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 WB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 1D
 East/West Street: US 50 WB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound				Southbound		
	Movement	1	2	3	4	5	6	
		L	T	R	L	T	R	
Volume		4	519			180	698	
Peak-Hour Factor, PHF		0.86	0.86			0.86	0.86	
Hourly Flow Rate, HFR		4	603			209	811	
Percent Heavy Vehicles		5	--	--		--	--	
Median Type/Storage		Undivided				/		
RT Channelized?							Yes	
Lanes		0	1			1	1	
Configuration		LT				T R		
Upstream Signal?		No				No		

Minor Street:	Approach	Westbound				Eastbound		
	Movement	7	8	9	10	11	12	
		L	T	R	L	T	R	
Volume		60		48				
Peak Hour Factor, PHF		0.85		0.85				
Hourly Flow Rate, HFR		70		56				
Percent Heavy Vehicles		5		5				
Percent Grade (%)			0			0		
Flared Approach: Exists?/Storage		/				/		
Lanes		1	1					
Configuration		L	R					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT		L		R			
v (vph)	4		70		56			
C(m) (vph)	1344		194		493			
v/c	0.00		0.36		0.11			
95% queue length	0.01		1.54		0.38			
Control Delay	7.7		33.7		13.2			
LOS	A		D		B			
Approach Delay				24.6				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 SB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 2
 East/West Street: US 50
 North/South Street: US 285 SB
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		84	389			222	503
Peak-Hour Factor, PHF		0.88	0.88			0.88	0.88
Hourly Flow Rate, HFR		95	442			252	571
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					382		94
Peak Hour Factor, PHF					0.88		0.88
Hourly Flow Rate, HFR					434		106
Percent Heavy Vehicles					5		5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1		1
Configuration					L		R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	95					434		106
C(m) (vph)	794					275		779
v/c	0.12					1.58		0.14
95% queue length	0.41					26.11		0.47
Control Delay	10.1					310.1		10.3
LOS	B					F		B
Approach Delay							251.3	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 2
 East/West Street: US 50
 North/South Street: US 285 NB
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		127	229		589	138	
Peak-Hour Factor, PHF		0.88	0.88		0.88	0.88	
Hourly Flow Rate, HFR		144	260		669	156	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		Yes					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		169		577			
Peak Hour Factor, PHF		0.88		0.88			
Hourly Flow Rate, HFR		192		655			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes		1	1				
Configuration		L	R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		669	192		655			
C(m) (vph)		1420	58		895			
v/c		0.47	3.31		0.73			
95% queue length		2.60	20.30		6.69			
Control Delay		9.8	1189		19.2			
LOS		A	F		C			
Approach Delay				284.4				
Approach LOS				F				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 1A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 2
 East/West Street: US 50
 North/South Street: CR 1A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		9	681	22	9	877	20
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.85	0.85	0.85
Hourly Flow Rate, HFR		10	756	24	10	1031	23
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?					No		
Lanes		0	1	0	0	1	1
Configuration		LTR			LT R		
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		25	2	2	13	2	10
Peak Hour Factor, PHF		0.73	0.73	0.73	0.69	0.69	0.69
Hourly Flow Rate, HFR		34	2	2	18	2	14
Percent Heavy Vehicles		0	0	0	5	0	5
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		No			/		
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LT	LTR			LTR		
v (vph)	10	10	38			34		
C(m) (vph)	649	824	55			81		
v/c	0.02	0.01	0.69			0.42		
95% queue length	0.05	0.04	2.86			1.69		
Control Delay	10.6	9.4	159.6			78.4		
LOS	B	A	F			F		
Approach Delay				159.6			78.4	
Approach LOS				F			F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 69
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 2
 East/West Street: US 50
 North/South Street: SH 69
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		912	20		26	1101	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		1072	23		31	1342	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		8		25			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		9		30			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		31		39				
C(m) (vph)		626		94				
v/c		0.05		0.41				
95% queue length		0.16		1.70				
Control Delay		11.1		68.1				
LOS		B		F				
Approach Delay				68.1				
Approach LOS				F				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 2
 East/West Street: US 50
 North/South Street: CR 3
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		845	9		43	1153	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		994	10		52	1406	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		2		61			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		2		73			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		52		75				
C(m) (vph)		678		235				
v/c		0.08		0.32				
95% queue length		0.25		1.32				
Control Delay		10.8		27.3				
LOS		B		D				
Approach Delay				27.3				
Approach LOS				D				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 9
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 2
 East/West Street: US 50
 North/South Street: SH 9
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		65	920			1219	116
Peak-Hour Factor, PHF		0.88	0.88			0.91	0.91
Hourly Flow Rate, HFR		73	1045			1339	127
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?						Yes	
Lanes		0	2			1	1
Configuration		LT T				T	R
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					126		12
Peak Hour Factor, PHF					0.78		0.78
Hourly Flow Rate, HFR					161		15
Percent Heavy Vehicles					5		5
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	73						176	
C(m) (vph)	495						46	
v/c	0.15						3.83	
95% queue length	0.51						19.61	
Control Delay	13.5						1453	
LOS	B						F	
Approach Delay							1453	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 2
 East/West Street: US 50
 North/South Street: CR 3A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		5	982	50	206	0	0
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.82	0.88	0.88
Hourly Flow Rate, HFR		5	1055	53	251	0	0
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	2	1	1	2	0
Configuration		L	T	R	L	T	TR
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		51	4	122	5	8	0
Peak Hour Factor, PHF		0.80	0.80	0.80	0.56	0.56	0.56
Hourly Flow Rate, HFR		63	4	152	8	14	0
Percent Heavy Vehicles		5	0	5	5	0	5
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage					/		
Lanes		0	1	1	0	1	0
Configuration		LT		R	LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
			1	4	7	8	9	10
			L	L	LT	R		LTR
v (vph)	5	251	67			152		22
C(m) (vph)	1600	609	42			540		68
v/c	0.00	0.41	1.60			0.28		0.32
95% queue length	0.01	2.01	6.81			1.15		1.19
Control Delay	7.3	15.0-	506.5			14.3		81.4
LOS	A	B	F			B		F
Approach Delay					164.9			81.4
Approach LOS					F			F

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 EB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 2
 East/West Street: US 50 EB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		114	63		30	211	
Peak-Hour Factor, PHF		0.83	0.83		0.87	0.87	
Hourly Flow Rate, HFR		137	75		34	242	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					521		7
Peak Hour Factor, PHF					0.89		0.89
Hourly Flow Rate, HFR					585		7
Percent Heavy Vehicles					5		0
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT				L		R
v (vph)		34				585		7
C(m) (vph)		1429				523		802
v/c		0.02				1.12		0.01
95% queue length		0.07				19.18		0.03
Control Delay		7.6				103.2		9.5
LOS		A				F		A
Approach Delay							102.1	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 WB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 2
 East/West Street: US 50 WB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound				Southbound		
	Movement	1	2	3	4	5	6	
		L	T	R	L	T	R	
Volume		4	630			180	780	
Peak-Hour Factor, PHF		0.86	0.86			0.86	0.86	
Hourly Flow Rate, HFR		4	732			209	906	
Percent Heavy Vehicles		5	--	--		--	--	
Median Type/Storage		Undivided				/		
RT Channelized?							Yes	
Lanes		0	1			1	1	
Configuration		LT				T R		
Upstream Signal?		No				No		

Minor Street:	Approach	Westbound				Eastbound		
	Movement	7	8	9	10	11	12	
		L	T	R	L	T	R	
Volume		60		48				
Peak Hour Factor, PHF		0.85		0.85				
Hourly Flow Rate, HFR		70		56				
Percent Heavy Vehicles		5		5				
Percent Grade (%)			0			0		
Flared Approach: Exists?/Storage		/				/		
Lanes		1	1					
Configuration		L R						

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT		L		R			
v (vph)	4		70		56			
C(m) (vph)	1344		152		416			
v/c	0.00		0.46		0.13			
95% queue length	0.01		2.12		0.46			
Control Delay	7.7		47.5		15.0-			
LOS	A		E		B			
Approach Delay				33.0				
Approach LOS				D				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 SB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 3
 East/West Street: US 50
 North/South Street: US 285 SB
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		84	386			221	491
Peak-Hour Factor, PHF		0.88	0.88			0.88	0.88
Hourly Flow Rate, HFR		95	438			251	557
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					379		94
Peak Hour Factor, PHF					0.88		0.88
Hourly Flow Rate, HFR					430		106
Percent Heavy Vehicles					5		5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1		1
Configuration					L		R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	95					430		106
C(m) (vph)	804					277		780
v/c	0.12					1.55		0.14
95% queue length	0.40					25.46		0.47
Control Delay	10.1					298.9		10.3
LOS	B					F		B
Approach Delay							241.8	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 3
 East/West Street: US 50
 North/South Street: US 285 NB
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		127	228		583	138	
Peak-Hour Factor, PHF		0.88	0.88		0.88	0.88	
Hourly Flow Rate, HFR		144	259		662	156	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage	Undivided				/		
RT Channelized?			Yes				
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		168		564			
Peak Hour Factor, PHF		0.88		0.88			
Hourly Flow Rate, HFR		190		640			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes		1	1				
Configuration		L	R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		662	190		640			
C(m) (vph)		1420	59		895			
v/c		0.47	3.22		0.72			
95% queue length		2.55	19.95		6.29			
Control Delay		9.7	1147		18.4			
LOS		A	F		C			
Approach Delay				276.8				
Approach LOS				F				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 1A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 3
 East/West Street: US 50
 North/South Street: CR 1A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		9	674	22	9	850	20
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.85	0.85	0.85
Hourly Flow Rate, HFR		10	748	24	10	999	23
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?					No		
Lanes		0	1	0	0	1	1
Configuration		LTR			LT R		
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		25	2	2	13	2	10
Peak Hour Factor, PHF		0.73	0.73	0.73	0.69	0.69	0.69
Hourly Flow Rate, HFR		34	2	2	18	2	14
Percent Heavy Vehicles		0	0	0	5	0	5
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		No			/		
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LT	LTR			LTR		
v (vph)	10	10	38			34		
C(m) (vph)	668	830	57			87		
v/c	0.01	0.01	0.67			0.39		
95% queue length	0.05	0.04	2.77			1.56		
Control Delay	10.5	9.4	149.9			70.8		
LOS	B	A	F			F		
Approach Delay				149.9			70.8	
Approach LOS				F			F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 69
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 3
 East/West Street: US 50
 North/South Street: SH 69
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		793	20		26	997	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		932	23		31	1215	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		8		25			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		9		30			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		31		39				
C(m) (vph)		708		135				
v/c		0.04		0.29				
95% queue length		0.14		1.12				
Control Delay		10.3		42.2				
LOS		B		E				
Approach Delay				42.2				
Approach LOS				E				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 3
 East/West Street: US 50
 North/South Street: CR 3
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		580	9		43	1033	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		682	10		52	1259	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		2		61			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		2		73			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		52		75				
C(m) (vph)		889		373				
v/c		0.06		0.20				
95% queue length		0.19		0.74				
Control Delay		9.3		17.1				
LOS		A		C				
Approach Delay				17.1				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 9
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 3
 East/West Street:
 North/South Street: SH 9
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		60	661			1098	116
Peak-Hour Factor, PHF		0.88	0.88			0.91	0.91
Hourly Flow Rate, HFR		68	751			1206	127
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?						Yes	
Lanes		0	2			1	1
Configuration		LT T				T	R
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					121		12
Peak Hour Factor, PHF					0.78		0.78
Hourly Flow Rate, HFR					155		15
Percent Heavy Vehicles					5		5
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	68						170	
C(m) (vph)	558						72	
v/c	0.12						2.36	
95% queue length	0.41						16.19	
Control Delay	12.3						744.5	
LOS	B						F	
Approach Delay							744.5	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 3
 East/West Street: US 50
 North/South Street: CR 3A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		5	752	50	206	0	0
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.82	0.88	0.88
Hourly Flow Rate, HFR		5	808	53	251	0	0
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	2	1	1	2	0
Configuration		L	T	R	L	T	TR
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		51	4	122	5	8	0
Peak Hour Factor, PHF		0.80	0.80	0.80	0.56	0.56	0.56
Hourly Flow Rate, HFR		63	4	152	8	14	0
Percent Heavy Vehicles		5	0	5	5	0	5
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage					/		
Lanes		0	1	1	0	1	0
Configuration		LT		R	LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound	
Movement	1	4	7	8	9	10	11 12
Lane Config	L	L	LT		R		LTR
v (vph)	5	251	67		152		22
C(m) (vph)	1600	758	74		636		106
v/c	0.00	0.33	0.91		0.24		0.21
95% queue length	0.01	1.45	4.59		0.93		0.73
Control Delay	7.3	12.1	174.8		12.4		47.6
LOS	A	B	F		B		E
Approach Delay				62.1			47.6
Approach LOS				F			E

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 EB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 3
 East/West Street: US 50 EB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		114	63		30	211	
Peak-Hour Factor, PHF		0.83	0.83		0.87	0.87	
Hourly Flow Rate, HFR		137	75		34	242	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					424		7
Peak Hour Factor, PHF					0.89		0.89
Hourly Flow Rate, HFR					476		7
Percent Heavy Vehicles					5		0
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT				L		R
v (vph)		34				476		7
C(m) (vph)		1429				523		802
v/c		0.02				0.91		0.01
95% queue length		0.07				10.74		0.03
Control Delay		7.6				48.5		9.5
LOS		A				E		A
Approach Delay							47.9	
Approach LOS							E	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 WB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 3
 East/West Street: US 50 WB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound				Southbound		
	Movement	1	2	3		4	5	6
		L	T	R		L	T	R
Volume		4	533				180	743
Peak-Hour Factor, PHF		0.86	0.86				0.86	0.86
Hourly Flow Rate, HFR		4	619				209	863
Percent Heavy Vehicles		5	--	--			--	--
Median Type/Storage		Undivided			/			
RT Channelized?						Yes		
Lanes		0	1				1	1
Configuration		LT				T R		
Upstream Signal?		No				No		

Minor Street:	Approach	Westbound				Eastbound		
	Movement	7	8	9		10	11	12
		L	T	R		L	T	R
Volume		60		48				
Peak Hour Factor, PHF		0.85		0.85				
Hourly Flow Rate, HFR		70		56				
Percent Heavy Vehicles		5		5				
Percent Grade (%)			0				0	
Flared Approach: Exists?/Storage					/			
Lanes		1		1				
Configuration		L		R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound				Eastbound		
Movement	1	4	7	8	9		10	11	12
Lane Config	LT		L		R				
v (vph)	4		70		56				
C(m) (vph)	1344		183		483				
v/c	0.00		0.38		0.12				
95% queue length	0.01		1.66		0.39				
Control Delay	7.7		36.4		13.4				
LOS	A		E		B				
Approach Delay				26.2					
Approach LOS				D					

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 SB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 4
 East/West Street: US 50
 North/South Street: US 285 SB
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		84	290			209	388
Peak-Hour Factor, PHF		0.88	0.88			0.88	0.88
Hourly Flow Rate, HFR		95	329			237	440
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					293		94
Peak Hour Factor, PHF					0.88		0.88
Hourly Flow Rate, HFR					332		106
Percent Heavy Vehicles					5		5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1		1
Configuration					L		R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	95					332		106
C(m) (vph)	901					333		795
v/c	0.11					1.00		0.13
95% queue length	0.35					11.10		0.46
Control Delay	9.5					84.8		10.2
LOS	A					F		B
Approach Delay							66.7	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at US 285 NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 4
 East/West Street: US 50
 North/South Street: US 285 NB
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		127	196		401	138	
Peak-Hour Factor, PHF		0.88	0.88		0.88	0.88	
Hourly Flow Rate, HFR		144	222		455	156	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		Yes					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		160		449			
Peak Hour Factor, PHF		0.88		0.88			
Hourly Flow Rate, HFR		181		510			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes		1	1				
Configuration		L	R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L	L		R			
v (vph)		455	181		510			
C(m) (vph)		1420	135		895			
v/c		0.32	1.34		0.57			
95% queue length		1.40	11.60		3.69			
Control Delay		8.7	256.5		14.2			
LOS		A	F		B			
Approach Delay				77.7				
Approach LOS				F				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 1A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 4
 East/West Street: US 50
 North/South Street: CR 1A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		9	460	22	9	609	20
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.85	0.85	0.85
Hourly Flow Rate, HFR		10	511	24	10	716	23
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		0	1	0	0	1	1
Configuration		LTR			LT R		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		25	2	2	13	2	10
Peak Hour Factor, PHF		0.73	0.73	0.73	0.69	0.69	0.69
Hourly Flow Rate, HFR		34	2	2	18	2	14
Percent Heavy Vehicles		0	0	0	5	0	5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		No /
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
			1	2	3	4	5	6
			L	T	R	L	T	R
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LT	LTR			LTR		
v (vph)	10	10	38			34		
C(m) (vph)	854	1018	140			191		
v/c	0.01	0.01	0.27			0.18		
95% queue length	0.04	0.03	1.03			0.63		
Control Delay	9.3	8.6	40.0			27.9		
LOS	A	A	E			D		
Approach Delay			40.0			27.9		
Approach LOS			E			D		

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 4
 East/West Street: US 50
 North/South Street: CR 3
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		382	9		43	577	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		449	10		52	703	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		2		61			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		2		73			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		52		75				
C(m) (vph)		1086		564				
v/c		0.05		0.13				
95% queue length		0.15		0.46				
Control Delay		8.5		12.4				
LOS		A		B				
Approach Delay				12.4				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 69
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 4
 East/West Street: US 50
 North/South Street: SH 69
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		430	20		26	565	
Peak-Hour Factor, PHF		0.85	0.85		0.82	0.82	
Hourly Flow Rate, HFR		505	23		31	689	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?		No					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No			No		

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		8		25			
Peak Hour Factor, PHF		0.83		0.83			
Hourly Flow Rate, HFR		9		30			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		31		39				
C(m) (vph)		1024		377				
v/c		0.03		0.10				
95% queue length		0.09		0.34				
Control Delay		8.6		15.6				
LOS		A		C				
Approach Delay				15.6				
Approach LOS				C				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at SH 9
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 4
 East/West Street: US 50
 North/South Street: SH 9
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		36	487			644	116
Peak-Hour Factor, PHF		0.88	0.88			0.91	0.91
Hourly Flow Rate, HFR		40	553			707	127
Percent Heavy Vehicles		5	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?						Yes	
Lanes		0	2			1	1
Configuration		LT T				T	R
Upstream Signal?		No				No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					98		11
Peak Hour Factor, PHF					0.78		0.78
Hourly Flow Rate, HFR					125		14
Percent Heavy Vehicles					5		5
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		
Lanes					0	0	
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LR	
v (vph)	40						139	
C(m) (vph)	868						214	
v/c	0.05						0.65	
95% queue length	0.14						3.92	
Control Delay	9.3						48.5	
LOS	A						E	
Approach Delay							48.5	
Approach LOS							E	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 at CR 3A
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 4
 East/West Street: US 50
 North/South Street: CR 3A
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R		4 L	5 T	6 R
Volume		5	533	50		206	0	0
Peak-Hour Factor, PHF		0.93	0.93	0.93		0.82	0.88	0.88
Hourly Flow Rate, HFR		5	573	53		251	0	0
Percent Heavy Vehicles		5	--	--		5	--	--
Median Type/Storage		Undivided			/			
RT Channelized?		No						
Lanes		1	2	1		1	2	0
Configuration		L	T	R		L	T	TR
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Northbound				Southbound		
		7 L	8 T	9 R		10 L	11 T	12 R
Volume		51	4	122		5	8	0
Peak Hour Factor, PHF		0.80	0.80	0.80		0.56	0.56	0.56
Hourly Flow Rate, HFR		63	4	152		8	14	0
Percent Heavy Vehicles		5	0	5		5	0	5
Percent Grade (%)		0				0		
Flared Approach: Exists?/Storage					/	No		
Lanes		0	1	1		0	1	0
Configuration		LT		R		LTR		

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound				Southbound		
			1	4	7		8	9	10
Movement	1	4	7	8	9		10	11	12
Lane Config	L	L	LT	R	R		LTR		
v (vph)	5	251	67		152		22		
C(m) (vph)	1600	931	123		742		154		
v/c	0.00	0.27	0.54		0.20		0.14		
95% queue length	0.01	1.09	2.61		0.76		0.49		
Control Delay	7.3	10.3	64.8		11.1		32.2		
LOS	A	B	F		B		D		
Approach Delay				27.5			32.2		
Approach LOS				D			D		

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 EB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 4
 East/West Street: US 50 EB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		114	63		30	211	
Peak-Hour Factor, PHF		0.83	0.83		0.87	0.87	
Hourly Flow Rate, HFR		137	75		34	242	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					369		7
Peak Hour Factor, PHF					0.89		0.89
Hourly Flow Rate, HFR					414		7
Percent Heavy Vehicles					5		0
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT				L		R
v (vph)		34				414		7
C(m) (vph)		1429				523		802
v/c		0.02				0.79		0.01
95% queue length		0.07				7.39		0.03
Control Delay		7.6				33.2		9.5
LOS		A				D		A
Approach Delay							32.8	
Approach LOS							D	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CDD
 Agency/Co.:
 Date Performed: 12/17/2009
 Analysis Time Period: Weekend Mid-Day Peak
 Intersection: US 50 WB at SH 115
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2013
 Project ID: 2013 - Alternative 4
 East/West Street: US 50 WB Ramp
 North/South Street: SH 115
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound				Southbound		
	Movement	1	2	3		4	5	6
		L	T	R		L	T	R
Volume		4	478				180	575
Peak-Hour Factor, PHF		0.86	0.86				0.86	0.86
Hourly Flow Rate, HFR		4	555				209	668
Percent Heavy Vehicles		5	--	--			--	--
Median Type/Storage		Undivided			/			
RT Channelized?						Yes		
Lanes		0	1				1	1
Configuration		LT				T R		
Upstream Signal?		No				No		

Minor Street:	Approach	Westbound				Eastbound		
	Movement	7	8	9		10	11	12
		L	T	R		L	T	R
Volume		60		48				
Peak Hour Factor, PHF		0.85		0.85				
Hourly Flow Rate, HFR		70		56				
Percent Heavy Vehicles		5		5				
Percent Grade (%)			0				0	
Flared Approach: Exists?/Storage					/			
Lanes		1		1				
Configuration		L		R				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound				Eastbound		
Movement	1	4	7	8	9		10	11	12
Lane Config	LT		L		R				
v (vph)	4		70		56				
C(m) (vph)	1344		229		526				
v/c	0.00		0.31		0.11				
95% queue length	0.01		1.24		0.36				
Control Delay	7.7		27.5		12.7				
LOS	A		D		B				
Approach Delay				20.9					
Approach LOS				C					